A Howard W. Sams® PHOTOFACT PUBLICATION

K2OFE

Howard W. Sams

TUBE SUBSTITUTION handbook

COMPLETELY UPDATED AND REVISED!
Contains Over 1000 NEW Substitutions

6 BIG Sections

- American Receiving Tubes
- Subminiature Tubes
- Industrial Substitutes
- Foreign Substitutes for American Types
- American Substitutes for Foreign Types
- Picture-Tube Substitutes

VOL. 5

Digitized by the Internet Archive
in 2023 with funding from
Amateur Radio Digital Communications, Grant 151

https://archive.org/details/k20fetubesubstit00unse

$1.50

Cat. No. TUB-5

Howard W. Sams

TUBE SUBSTITUTION handbook

by

The Howard W. Sams Engineering Staff

HOWARD W. SAMS & CO., INC.
THE BOBBS-MERRILL COMPANY, INC.
Indianapolis • New York

FIRST EDITION

FIRST PRINTING — JUNE, 1960
SECOND PRINTING — JUNE, 1960
THIRD PRINTING — AUGUST, 1960
FOURTH PRINTING — OCTOBER, 1960
FIFTH PRINTING — NOVEMBER, 1960

SECOND EDITION

FIRST PRINTING — JANUARY, 1961
SECOND PRINTING — MARCH, 1961
THIRD PRINTING — MAY, 1961

THIRD EDITION

FIRST PRINTING — AUGUST, 1961
SECOND PRINTING — OCTOBER, 1961
THIRD PRINTING — NOVEMBER, 1961
FOURTH PRINTING — JANUARY, 1962

FOURTH EDITION

FIRST PRINTING — MARCH, 1962
SECOND PRINTING — JUNE, 1962

FIFTH EDITION

FIRST PRINTING — SEPTEMBER, 1962

TUBE SUBSTITUTION HANDBOOK, VOL. 5

Copyright © 1962, 1961, and 1960 by Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in the United States of America.

Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. While every precaution has been taken in the preparation of this book, the publisher assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from use of the information contained herein.

Library of Congress Catalog Card Number: 60-13842

6BQ7	6.3	**EV**-7608-0	13	88	P4	5300	Triode No. 1
6BQ7	6.3	**EV**-2103-0	13	88	P4	5300	Triode No. 2
6BQ7A	6.3	**EV**-7608-9	13	88	P4	5300	Triode No. 1
6BQ7A	6.3	**EV**-2103-9	13	88	P4	5300	Triode No. 2
6BR8	6.3	**EV**-9678-0	15	76	P4	2250	Pent. Sect.
6BR8	6.3	**EV**-1203-0	16	87	P4	4500	Triode Sect.
6BS8	6.3	**EV**-7608-9	20	86	P4	4000	Triode No. 1
6BS8	6.3	**EV**-2103-9	20	86	P4	4000	Triode No. 2
6BT6	6.3	**JR**-3702-0	13	60	P4	1300	Triode Sect.
6BT6	6.3	**JR**-3602-0	0	0	P1*	......	Diode No. 1
6BT6	6.3	**JR**-3502-0	0	0	P1*	......	Diode No. 2
6BT8	6.3	**EV**-8679-0	22	75	P4	2200	Pent. Sect.
6BT8	6.3	**EV**-0103-0	0	30	P1*	......	Diode No. 1
6BT8	6.3	**EV**-0203-0	0	30	P1*	......	Diode No. 2
6BU6	6.3	**JR**-3702-0	34	65	P4	1500	Triode Sect.
6BU6	6.3	**JR**-3602-0	0	0	P1*	......	Diode No. 1
6BU6	6.3	**JR**-3502-0	0	0	P1*	......	Diode No. 2
6BU8	6.3	**EV**-7821-9	0	59	P4	1300	Pent. No. 1
6BU8	6.3	**EV**-7321-6	0	59	P4	1300	Pent. No. 2
6BV8	6.3	**EV**-2301-0	23	86	P4	4000	Triode Sect.
6BV8	6.3	**EV**-0907-0	0	61	P1*	......	Diode No. 1
6BV8	6.3	**EV**-0608-0	0	61	P1*	......	Diode No. 2
6BW4	6.3	**EV**-0709-1	0	20	P3*	......	Plate No. 1
6BW4	6.3	**EV**-0109-7	0	20	P3*	......	Plate No. 2
6BW8	6.3	**EV**-6987-0	15	76	P4	2250	Pent. Sect.
6BW8	6.3	**EV**-0302-0	0	50	P1*	......	Diode No. 1
6BW8	6.3	**EV**-0102-0	0	50	P1*	......	Diode No. 2
6BX6	6.3	**EV**-2781-9	13	81	P4	3000	
6BX7	6.3	**JX**-4506-1	35	92	P4	7600	Triode No. 1
6BX7	6.3	**JX**-2103-5	35	92	P4	7600	Triode No. 2
6BX8	6.3	**EV**-7608-9	33	78	P4	2500	Triode No. 1
6BX8	6.3	**EV**-2103-9	33	78	P4	2500	Triode No. 2
6BY5	6.3	**JR**-0402-0	0	59	P3*	......	Plate No. 1
6BY5	6.3	**JR**-0507-0	0	59	P3*	......	Plate No. 2
6BY6	6.3	**JR**-3562-7	21	56	P4	1200	
6BY8	6.3	**EV**-1789-2	16	76	P4	2300	Pent. Sect.
6BY8	6.3	**EV**-0603-0	0	61	P1*	......	Diode Sect.
6BZ6	6.3	**JR**-3562-7	20	78	P4	2500	
6BZ7	6.3	**EV**-7608-9	18	88	P4	5000	Triode No. 1
6BZ7	6.3	**EV**-2103-9	18	88	P4	5000	Triode No. 2
6BZ8	6.3	**EV**-7608-9	20	86	P4	4000	Triode No. 1
6BZ8	6.3	**EV**-2103-9	20	86	P4	4000	Triode No. 2
6C4	6.3	**JR**-6307-0	24	75	P4	2200	
6C5	6.3	**JR**-5307-0	21	73	P4	2000	
6C6	6.3	**JR**-0235-4	21	60	P4	1225	Cap=G
6C7	6.3	**JR**-0206-0	29	60	P4	1250	Triode Sect. Cap=G
6C7	6.3	**JR**-0506-0	29	0	P1*	......	Diode No. 1
6C7	6.3	**JR**-0406-0	29	0	P1*	......	Diode No. 2
6C8	6.3	**JR**-5607-0	17	51	P4	1000	Triode No. 1
6C8	6.3	**JR**-0304-0	17	51	P4	1000	Triode No. 2 Cap=G
6CA5	6.3	**JR**-2763-0	24	90	P4	6000	
6CA7	6.3	**JR**-5347-2	27	90	P4	6000	
6CB5	7.5	**JR**-4023-0	49	87	P4	4500	Cap=P
6CB6	6.3	**JR**-3562-7	22	76	P4	2200	
6CD6	6.3	**JR**-5073-0	42	90	P4	6500	Cap=P
6CE5	6.3	**JR**-3562-0	22	75	P4	2200	
6CF6	6.3	**JR**-3562-7	22	75	P4	2200	
6CG7	6.3	**EV**-7608-9	23	73	P4	2000	Triode No. 1
6CG7	6.3	**EV**-2103-9	23	73	P4	2000	Triode No. 2
6CG8	6.3	**EV**-9678-0	10	81	P4	3000	Pent. Sect.
6CG8	6.3	**EV**-1203-0	20	81	P4	3000	Triode Sect.
6CH7	6.3	**EV**-7608-0	18	88	P4	5000	Triode No. 1
6CH7	6.3	**EV**-2103-0	18	88	P4	5000	Triode No. 2
6CH8	6.3	**EV**-7236-0	9	86	P4	4000	Pent. Sect.
6CH8	6.3	**EV**-8901-0	21	83	P4	3300	Triode Sect.
6CJ6	6.3	**EV**-2073-1	54	87	P4	4600	Cap=P
6CK6	6.3	**EV**-2713-6	5	91	P4	7500	
6CL6	6.3	**EV**-2631-7	18	88	P4	5000	
6CL8	6.3	**EV**-9678-0	12	81	P4	3000	Tetrode Sect.
6CL8	6.3	**EV**-1203-0	12	87	P4	4500	Triode Sect.
6CM6	6.3	**EV**-3917-0	21	85	P4	3700	
6CM7	6.3	**EV**-7603-0	24	73	P4	2000	Triode No. 1
6CM7	6.3	**EV**-8109-0	20	87	P4	4400	Triode No. 2
6CM8	6.3	**EV**-2673-0	22	75	P4	2200	Pent. Sect.
6CM8	6.3	**EV**-9108-0	16	48	P4	1000	Triode Sect.
6CN7	6.3	**EV**-7806-0	11	56	P4	1200	Triode Sect.
6CN7	6.3	**EV**-0203-0	0	50	P1★	......	Diode No. 1
6CN7	6.3	**EV**-0103-0	0	50	P1★	......	Diode No. 2
6CQ8	6.3	**EV**-2637-0	16	80	P4	2800	Tetrode Sect.
6CQ8	6.3	**EV**-9108-0	23	83	P4	3400	Triode Sect.
6CR6	6.3	**JR**-7563-2	12	72	P4	1950	Pent. Sect.
6CR6	6.3	**JR**-0203-0	0	0	P1★	......	Diode Sect.
6CS6	6.3	**JR**-7562-3	Use this setting for short check only				
6CS6	6.3	**JR**-3602-7	43	35	P4	800	
6CS7	6.3	**EV**-7608-0	17	75	P4	2200	Triode No. 1
6CS7	6.3	**EV**-3109-0	24	87	P4	4500	Triode No. 2
6CU5	6.3	**JR**-2763-0	37	88	P4	5000	
6CU6	6.3	**JR**-5047-0	50	87	P4	4500	Cap=P
6CU8	6.3	**EV**-7236-1	9	86	P4	4000	Pent. Sect.
6CU8	6.3	**EV**-8901-0	21	83	P4	3300	Triode Sect.
6CX8	6.3	**EV**-7986-0	16	90	P4	6000	Pent. Sect.
6CX8	6.3	**EV**-2301-0	24	73	P4	2000	Triode Sect.
6CY5	6.3	**JR**-3562-0	23	81	P4	3000	
6CY7	6.3	**EV**-7608-0	23	0	P4	500	Triode No. 1
6CY7	6.3	**EV**-2109-0	63	86	P4	4000	Triode No. 2
6CZ5	6.3	**EV**-3917-0	12	88	P4	4800	
6D4	6.3	**JR**-3705-0	#	55	P3*	......	Strikes at about 75
6D5	6.3	**JR**-5307-0	57	73	P4	2000	
6D6	6.3	**JR**-0235-4	21	68	P4	1600	Cap=G
6D7	6.3	**JR**-0236-4	24	58	P4	1225	Cap=G
6D8	6.3	**JR**-0347-5	22	50	P4	1000	Pent. Sect. Cap=G
6D8	6.3	**JR**-5647-3	30	73	P4	300	TRIODE SECT. MICROMHOS ONLY OK OVER 240 ON 3000 SCALE CAP=G
6DA6	6.3	**EV**-2783-9	23	73	P4	2000	
6DB5	6.3	**EV**-3912-0	30	90	P4	6500	
6DB6	6.3	**JR**-3562-7	16	65	P4	1500	
6DC6	6.3	**JR**-3562-7	18	78	P4	2500	
6DE6	6.3	**JR**-3562-7	22	75	P4	2200	
6DE7	6.3	**EV**-7608-0	35	60	P4	1300	Triode No. 1
6DE7	6.3	**EV**-2109-0	54	88	P4	6500	Triode No. 2
6DG6	6.3	**JR**-5347-0	30	90	P4	6500	
6DK6	6.3	**JR**-3562-7	15	84	P4	3500	
6DN6	6.3	**JR**-5073-0	43	90	P4	6000	Cap=P
6DQ6	6.3	**JR**-5047-0	32	90	P4	6000	Cap=P
6DS5	6.3	**JR**-3562-0	16	89	P4	6000	
6T8	6.3	**EV**-8907-6	11	56	P4	1200	Triode Section
6T8	6.3	**EV**-0607-1	0	50	P1*	......	Diode No. 1
6T8	6.3	**EV**-0203-7	0	50	P1*	......	Diode No. 2
6T8	6.3	**EV**-0107-8	0	50	P1*	......	Diode No. 3
6U3	6.3	**EV**-0903-0	0	66	P3*	......	
6U4	6.3	**JX**-0503-0	0	66	P3*	......	
6U5	6.3	**JR**-5403-0	....	....	P4	......	Eye Open
6U5	6.3	**JR**-5423-0	....	....	P4	......	Eye Closed
6U6	6.3	**JR**-5347-0	33	89	P4	6200	
6U7	6.3	**JR**-0347-5	21	68	P4	1600	Cap=G
6U8	6.3	**EV**-2637-0	15	76	P4	2250	Pent. Sect.
6U8	6.3	**EV**-9108-0	16	87	P4	4500	Triode Sect.
6V3	6.3	**EV**-0002-0	0	65	P3*	......	CAP=P. REVERSE METER
6V4	6.3	**EV**-0703-1	0	35	P3*	......	Plate No. 1
6V4	6.3	**EV**-0103-7	0	35	P3*	......	Plate No. 2
6V5	6.3	**JX**-5340-0	31	86	P4	4100	
6V6	6.3	**JR**-5347-2	21	85	P4	3700	
6V7	6.3	**JR**-0307-0	39	49	P4	975	Triode Sect. Cap=G
6V7	6.3	**JR**-0507-0	39	0	P1*	......	Diode No. 1
6V7	6.3	**JR**-0407-0	39	0	P1*	......	Diode No. 2
6V8	6.3	**EV**-6103-8	11	56	P4	1200	Triode Sect.
6V8	6.3	**EV**-0903-2	0	0	P1*	......	Diode No. 1
6V8	6.3	**EV**-0708-6	0	63	P1*	......	Diode No. 2
6V8	6.3	**EV**-0203-8	0	63	P1*	......	Diode No. 3
6W4	6.3	**JX**-0503-0	0	72	P3*	......	
6W5	6.3	**JR**-0507-0	0	33	P3*	......	Plate No. 1
6W5	6.3	**JR**-0307-0	0	33	P3*	......	Plate No. 2
6W6	6.3	**JR**-5347-0	30	90	P4	6500	
6W7	6.3	**JR**-0347-5	22	58	P4	1225	Cap=G
6X4	6.3	**JR**-0607-3	0	20	P3*	......	Plate No. 1
6X4	6.3	**JR**-0307-6	0	20	P3*	......	Plate No. 2
6X5	6.3	**JR**-0507-2	0	33	P3*	......	Plate No. 1
6X5	6.3	**JR**-0307-2	0	33	P3*	......	Plate No. 2
6X8	6.3	**EV**-7986-1	10	81	P4	3000	Pent. Sect.
6X8	6.3	**EV**-2386-1	20	81	P4	3000	Triode Sect.
6Y5	6.3	**JR**-0504-0	0	30	P3*	......	Plate No. 1
6Y5	6.3	**JR**-0304-0	0	30	P3*	......	Plate No. 2
6Y6	6.3	**JR**-5347-0	44	90	P4	6000	
6Y7	6.3	**JR**-5607-3	15	48	P4	1000	Triode No. 1
6Y7	6.3	**JR**-4307-6	15	48	P4	1000	Triode No. 2
6Z4	6.3	**JR**-0304-0	0	35	P3*	....	Plate No. 1
6Z4	6.3	**JR**-0204-0	0	35	P3*	....	Plate No. 2
6Z5	12.6	**JS**-0504-0	0	49	P3*	......	Plate No. 1
6Z5	12.6	**JS**-0304-0	0	49	P3*	......	Plate No. 2
6Z7	6.3	**JR**-5607-0	0	55	P4	1200	Triode No. 1
6Z7	6.3	**JR**-4307-0	0	55	P4	1200	Triode No. 2
6ZY5	6.3	**JR**-0507-0	0	30	P3*	......	Plate No. 1
6ZY5	6.3	**JR**-0307-0	0	30	P3*	......	Plate No. 2
7A4	6.3	**JR**-6207-0	23	73	P4	2000	
7A5	6.3	**JR**-6237-0	28	87	P4	6000	
7A6	6.3	**JR**-0607-5	0	49	P1*	......	Diode No. 1
7A6	6.3	**JR**-0302-5	0	49	P1*	......	Diode No. 2
7A7	6.3	**JR**-6237-4	27	71	P4	1750	
7A8	6.3	**JR**-6257-4	20	50	P4	1000	Ampl. Sect.
7A8	6.3	**JR**-4357-6	20	0	P4	500	Osc. Sect.
7AB7	6.3	**HS**-5314-0	10	71	P4	1800	
7AD7	6.3	**JR**-6237-4	10	90	P4	6200	
7AF7	6.3	**JR**-5607-0	21	79	P4	2600	Triode No. 1
7AF7	6.3	**JR**-4302-0	21	79	P4	2600	Triode No. 2
7AG7	6.3	**JR**-6237-4	0	82	P4	3000	
7AH7	6.3	**JR**-6237-4	0	83	P4	3300	
7AJ7	6.3	**JR**-6237-4	9	76	P4	2275	
7AK7	6.3	**JR**-6237-4	0	85	P4	4000	
7AU7	6.3	**EV**-7608-0	24	75	P4	2200	Triode No. 1
7AU7	6.3	**EV**-2103-0	24	75	P4	2200	Triode No. 2
7B4	6.3	**JR**-6207-0	12	52	P4	1000	
7B5	6.3	**JR**-6237-0	34	68	P4	1600	
7B6	6.3	**JR**-3207-0	11	34	P4	750	Triode Sect.
7B6	6.3	**JR**-0607-2	11	0	P1*	......	Diode No. 1
7B6	6.3	**JR**-0507-2	11	0	P1*	......	Diode No. 2
7B7	6.3	**JR**-6237-4	27	70	P4	1700	
7B8	6.3	**JR**-6257-4	18	67	P4	1500	Pent. Sect.
7B8	6.3	**JR**-4357-6	18	30	P4	650	Osc. Sect.
7C4	6.3	**JR**-0407-0	0	30	P1*	......	Diode
7C5	6.3	**JR**-6237-0	30	82	P4	3000	
7C6	6.3	**JR**-3207-0	10	18	P4	600	Triode Sect.
7C6	6.3	**JR**-0607-2	10	0	P1*	......	Diode No. 1
7C6	6.3	**JR**-0507-2	10	0	P1*	......	Diode No. 2
7C7	6.3	**JR**-6237-4	22	60	P4	1300	
7E5	6.3	**JS**-1304-0	15	82	P4	3000	
7E6	6.3	**JR**-3207-0	18	72	P4	1900	Triode Sect.
7E6	6.3	**JR**-0607-2	18	0	P1*	......	Diode No. 1
7E6	6.3	**JR**-0507-2	18	0	P1*	......	Diode No. 2
7E7	6.3	**JR**-6257-0	22	60	P4	1300	Pent. Sect.
7E7	6.3	**JR**-0407-2	22	0	P1*	......	Diode No. 1
7E7	6.3	**JR**-0307-2	22	0	P1*	......	Diode No. 2
7F7	6.3	**JR**-5607-3	0	60	P4	1300	Triode No. 1
7F7	6.3	**JR**-4302-6	0	60	P4	1300	Triode No. 2
7F8	6.3	**HS**-8605-0	10	86	P4	4000	Triode No. 1
7F8	6.3	**HS**-1304-0	10	86	P4	4000	Triode No. 2
7G7	6.3	**JR**-6237-4	18	73	P4	2000	
7G8	6.3	**JR**-5736-2	10	74	P4	2100	Tetrode No. 1
7G8	6.3	**JR**-4236-7	10	74	P4	2100	Tetrode No. 2
7H7	6.3	**JR**-6237-4	10	82	P4	3000	
7J7	6.3	**JR**-6257-4	18	38	P4	800	Heptode Sect.
7J7	6.3	**JR**-4357-6	18	51	P4	1000	Triode Sect.
7K7	6.3	**JR**-4302-0	0	50	P4	1000	Triode Sect.
7K7	6.3	**JR**-0507-0	0	0	P1*	......	Diode No. 1
7K7	6.3	**JR**-0607-0	0	0	P1*	......	Diode No. 2
7L7	6.3	**JR**-6237-4	12	73	P4	2000	
7N7	6.3	**JR**-5607-3	23	73	P4	2000	Triode No. 1
7N7	6.3	**JR**-4302-6	23	73	P4	2000	Triode No. 2
7Q7	6.3	**JR**-6237-4	21	0	P4	500	Ampl. Sect.
7Q7	6.3	**JR**-4237-6	21	40	P4	800	Osc. Sect.
7R7	6.3	**JR**-6257-0	10	82	P4	3000	Pent. Sect.
7R7	6.3	**JR**-0407-2	10	0	P1*	......	Diode No. 1
7R7	6.3	**JR**-0307-2	10	0	P1*	......	Diode No. 2
7S7	6.3	**JR**-6257-4	18	65	P4	1500	Heptode Sect.
7S7	6.3	**JR**-4357-6	0	65	P4	1500	Triode Sect.
7T7	6.3	**JR**-6237-4	9	82	P4	3000	
7V7	6.3	**JR**-6237-4	6	86	P4	4000	
7W7	6.3	**JR**-6237-5	11	82	P4	3000	
7X6	6.3	**JR**-0607-5	0	55	P3*	......	Plate No. 1
7X6	6.3	**JR**-0302-5	0	55	P3*	......	Plate No. 2
7X7	6.3	**JR**-3204-0	0	37	P4	900	Triode Sect.
7X7	6.3	**JR**-0504-0	0	61	P1*	......	Diode No. 1
7X7	6.3	**JR**-0607-0	0	61	P1*	......	Diode No. 2
7Y4	6.3	**JR**-0607-0	0	33	P3*	......	Plate No. 1
7Y4	6.3	**JR**-0307-0	0	33	P3*	......	Plate No. 2

FIRST EDITION
FIRST PRINTING — JUNE, 1960
SECOND PRINTING — JUNE, 1960
THIRD PRINTING — AUGUST, 1960
FOURTH PRINTING — OCTOBER, 1960
FIFTH PRINTING — NOVEMBER, 1960

SECOND EDITION
FIRST PRINTING — JANUARY, 1961
SECOND PRINTING — MARCH, 1961
THIRD PRINTING — MAY, 1961

THIRD EDITION
FIRST PRINTING — AUGUST, 1961
SECOND PRINTING — OCTOBER, 1961
THIRD PRINTING — NOVEMBER, 1961
FOURTH PRINTING — JANUARY, 1962

FOURTH EDITION
FIRST PRINTING — MARCH, 1962
SECOND PRINTING — JUNE, 1962

FIFTH EDITION
FIRST PRINTING — SEPTEMBER, 1962

TUBE SUBSTITUTION HANDBOOK, VOL. 5

Copyright © 1962, 1961, and 1960 by Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in the United States of America.

Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. While every precaution has been taken in the preparation of this book, the publisher assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from use of the information contained herein.

Library of Congress Catalog Card Number: 60-13842

7Z4	6.3	JR-0607-0	0	24	P3*	—	Plate No. 1
7Z4	6.3	JR-0307-0	0	24	P3*	—	Plate No. 2
8AU8	7.5	EV-7986-0	20	84	P4	3500	Pent. Sect.
8AU8	7.5	EV-2301-0	22	78	P4	2500	Triode Sect.
8AW8A	7.5	EV-7986-3	20	86	P4	4000	Pent. Sect.
8AW8A	7.5	EV-2301-9	22	65	P4	1500	Triode Sect.
8BA8A	7.5	EV-7986-0	11	88	P4	5000	Pent. Sect.
8BA8A	7.5	EV-2301-0	29	79	P4	2700	Triode Sect.
8BH8	7.5	EV-7986-0	11	87	P4	4500	Pent. Sect.
8BH8	7.5	EV-2301-0	27	83	P4	3300	Triode Sect.
8BN8	7.5	EV-8709-0	26	48	P4	1000	Triode Sect.
8BN8	7.5	EV-0603-0	0	61	P1*	—	Diode No. 1
8BN8	7.5	EV-0102-0	0	61	P1*	—	Diode No. 2
8CG7	7.5	EV-7608-9	23	73	P4	2000	Triode No. 1
8CG7	7.5	EV-2103-9	23	73	P4	2000	Triode No. 2
8CM7	7.5	EV-7603-0	24	73	P4	2000	Triode No. 1
8CM7	7.5	EV-8109-0	20	87	P4	4400	Triode No. 2
8CN7	7.5	EV-7806-0	11	56	P4	1200	Triode Sect.
8CN7	7.5	EV-0203-0	0	50	P1*	—	Diode No. 1
8CN7	7.5	EV-0103-0	0	50	P1*	—	Diode No. 2
8CS7	7.5	EV-7608-0	17	75	P4	2200	Triode No. 1
8CS7	7.5	EV-3109-0	24	87	P4	4500	Triode No. 2
8CY7	7.5	EV-7608-0	23	0	P4	500	Triode No. 1
8CY7	7.5	EV-2109-0	63	86	P4	4000	Triode No. 2
8SN7	7.5	JX-4506-1	23	73	P4	2000	Triode No. 1
8SN7	7.5	JX-2103-5	23	73	P4	2000	Triode No. 2
9AU7	10.0	EV-7608-0	24	75	P4	2200	Triode No. 1
9AU7	10.0	EV-2103-0	24	75	P4	2200	Triode No. 2
9CL8	10.0	EV-9678-0	12	81	P4	3000	Tetrode Sect.
9CL8	10.0	EV-1203-0	12	87	P4	4500	Triode Sect.
9U8	10.0	EV-2637-0	15	76	P4	2250	Pent. Sect.
9U8	10.0	EV-9108-0	16	87	P4	4500	Triode Sect.
9X8	10.0	EV-7986-1	10	81	P4	3000	Pent. Sect.
9X8	10.0	EV-2386-1	20	81	P4	3000	Triode Sect.
10	7.5	JR-3200-0	39	61	P4	1250	
10C8	10.0	EV-8679-0	17	81	P4	3000	Pent. Sect.
10C8	10.0	EV-2103-0	21	73	P4	2000	Triode Sect.
10DA7	10.0	EV-7608-0	23	79	P4	2600	Triode No. 1
10DA7	10.0	EV-3109-0	55	88	P4	4700	Triode No. 2
10DE7	10.0	EV-7608-0	35	60	P4	1300	Triode No. 1
10DE7	10.0	EV-2109-0	54	88	P4	6500	Triode No. 2
10Y	7.5	JR-3200-0	12	65	P4	1500	
11C5	10.0	JR-2763-0	34	88	P4	4500	
12A	5.0	JR-3200-0	44	70	P4	1650	
12A4	12.6	EV-2901-0	31	88	P4	5000	
12A5	12.6	JR-4235-0	51	71	P4	1800	
12A6	12.6	JR-5347-2	12	82	P4	3000	
12A7	12.6	JR-0236-5	48	48	P4	975	Pent. Sect. Cap-G
12A7	12.6	JR-0504-2	0	40	P3*	—	Rect. Sect.
12A8	12.6	JR-0347-5	22	50	P4	1000	Pent. Sect. Cap=G
12A8	12.6	JR-5647-3	37	73	P4	300	OSC. SECT. MICROMHOS ONLY OK OVER 240 ON 3000 SCALE
12AB5	12.6	EV-3917-0	21	85	P4	3700	
12AC6	12.6	JR-2657-3	30	0	P1*	—	OK ABOVE 400 ON 3000 SCALE. MAKE NO GAS TEST
12AD6	12.6	JR-7652-3	30	0	P1*	—	OK ABOVE 700 ON 3000 SCALE. MAKE NO GAS TEST
12AD7	12.6	EV-7608-0	12	58	P4	1250	Triode No. 1
12AD7	12.6	EV-2103-0	12	58	P4	1250	Triode No. 2
12AE6	12.6	JR-0702-3	0	0	P1*	—	TRIODE SECT. OK ABOVE 300 ON 3000 SCALE. MAKE NO GAS TEST
12AE6	12.6	JR-0602-0	0	0	P1*	—	Diode No. 1
12AE6	12.6	JR-0502-0	0	0	P1*	—	Diode No. 2
12AE7	12.6	EV-0608-7	0	30	P1*	—	TRIODE NO. 1 MAKE NO GAS TEST
12AE7	12.6	EV-0103-2	0	40	P1*	—	TRIODE NO. 2 MAKE NO GAS TEST
12AF6	12.6	JR-3567-2	41	55	P4	1150	
12AG6	12.6	JR-7652-3	30	30	P1*	—	OK ABOVE DIODES OK. MAKE NO GAS TEST
12AH7	12.6	JX-5604-3	20	73	P4	2000	Triode No. 1
12AH7	12.6	JX-2301-6	20	73	P4	2000	Triode No. 2
12AJ6	12.6	JR-0702-3	0	0	P1*	—	TRIODE SECT. OK ABOVE 200 ON 3000 SCALE. MAKE NO GAS TEST
12AJ6	12.6	JR-0602-0	0	0	P1*	—	Diode No. 1
12AJ6	12.6	JR-0502-0	0	0	P1*	—	Diode No. 2
12AL5	12.6	JR-0703-0	0	61	P1*	—	Diode No. 1
12AL5	12.6	JR-0205-0	0	61	P1*	—	Diode No. 2
12AL8	12.6	EV-0367-2	0	57	P1*	—	TETRODE SECT. MAKE NO GAS TEST
12AL8	12.6	EV-0109-8	0	0	P1*	—	TRIODE SECT. OK ABOVE 200 ON 3000 SCALE. MAKE NO GAS TEST
12AQ5	12.6	JR-3562-0	21	85	P4	3700	
12AT6	12.6	JR-3702-0	11	56	P4	1200	Triode Sect.
12AT6	12.6	JR-3602-0	11	0	P1*	—	Diode No. 1
12AT6	12.6	JR-3502-0	11	0	P1*	—	Diode No. 2
12AT7	12.6	EV-7608-0	10	86	P4	4000	Triode No. 1
12AT7	12.6	EV-2103-0	10	86	P4	4000	Triode No. 2
12AU6	12.6	JR-3567-2	16	76	P4	2300	
12AU7	12.6	EV-7608-0	24	75	P4	2200	Triode No. 1
12AU7	12.6	EV-2103-0	24	75	P4	2200	Triode No. 2
12AV5	12.6	JR-2573-0	50	86	P4	3900	
12AV6	12.6	JR-3702-5	12	58	P4	1250	Triode Section
12AV6	12.6	JR-3602-5	0	0	P1*	—	Diode No. 1
12AV6	12.6	JR-3502-6	0	0	P1*	—	Diode No. 2
12AV7	12.6	EV-2103-7	30	69	P4	1640	Triode No. 1
12AV7	12.6	EV-7608-2	30	69	P4	1640	Triode No. 2
12AW6	12.6	JR-3562-7	0	82	P4	3000	
12AX4	12.6	JX-0503-0	0	60	P3*	—	
12AX7	12.6	EV-7608-0	12	58	P4	1250	Triode No. 1
12AX7	12.6	EV-2103-0	12	58	P4	1250	Triode No. 2
12AY7	12.6	EV-7608-0	15	58	P4	1250	Triode No. 1
12AY7	12.6	EV-2103-0	15	58	P4	1250	Triode No. 2
12AZ7	12.6	EV-7608-0	10	86	P4	4000	Triode No. 1
12AZ7	12.6	EV-2103-0	10	86	P4	4000	Triode No. 2
12B4	12.6	EV-2901-0	52	90	P4	6500	
12B7	12.6	JR-6237-4	22	72	P4	1900	
12B8	12.6	JR-0342-0	22	71	P4	1800	Pent. Sect. Cap-G
12B8	12.6	JR-7506-0	0	73	P4	2000	Triode Sect.
12BA6	12.6	JR-3567-2	9	83	P4	3300	
12BA7	12.6	EV-7913-2	17	31	P4	750	Ampl. Sect.
12BA7	12.6	EV-2913-7	25	31	P4	750	Osc. Sect.
12BD6	12.6	JR-3567-2	18	73	P4	2000	
12BE6	12.6	JR-7562-3	11	63	P4	1425	Ampl. Sect.
12BE6	12.6	JR-3562-7	0	67	P4	1600	Osc. Sect.
12BF6	12.6	JR-3702-0	14	72	P4	1900	Triode Section
12BF6	12.6	JR-3602-0	0	0	P1*	—	Diode No. 1
12BF6	12.6	JR-3502-0	0	0	P1*	—	Diode No. 2
12BH7	12.6	EV-7608-2	29	78	P4	2380	Triode No. 1
12BH7	12.6	EV-2103-7	29	78	P4	2380	Triode No. 2
12BK5	12.6	EV-3186-0	0	91	P4	7000	
12BK6	12.6	JR-3702-5	6	58	P4	1250	Triode Sect.
12BK6	12.6	JR-0602-5	0	49	P1*	—	Diode No. 1
12BK6	12.6	JR-0502-7	0	49	P1*	—	Diode No. 2
12BL6	12.6	JR-2657-3	30	0	P1*	—	OK ABOVE DIODES OK MAKE NO GAS TEST
12BN6	12.6	JR-2753-6	0	28	P4	700	Limiter Grid
12BN6	12.6	JR-6753-2	0	43	P4	900	Quadrature Grid
12BQ6	12.6	JR-5047-0	50	87	P4	4500	Cap-P
12BR7	12.6	EV-2103-0	10	86	P4	4000	Triode Sect.
12BR7	12.6	EV-0708-0	0	56	P1*	—	Diode No. 1
12BR7	12.6	EV-0608-0	0	56	P1*	—	Diode No. 2
12BT6	12.6	JR-3702-0	13	60	P4	1300	Triode Sect.
12BT6	12.6	JR-3602-0	0	0	P1*	—	Diode No. 1
12BT6	12.6	JR-3502-0	0	0	P1*	—	Diode No. 2
12BU6	12.6	JR-3702-0	34	65	P4	1500	Triode Sect.
12BU6	12.6	JR-3602-0	0	0	P1*	—	Diode No. 1
12BU6	12.6	JR-3502-0	0	0	P1*	—	Diode No. 2
12BV7	12.6	EV-2781-3	13	90	P4	6000	
12BW4	12.6	EV-0709-1	0	20	P3*	—	Plate No. 1
12BW4	12.6	EV-0109-7	0	20	P3*	—	Plate No. 2
12BY7	12.6	EV-2781-3	13	90	P4	6000	
12BZ7	12.6	EV-7608-0	24	48	P4	1000	Triode No. 1
12BZ7	12.6	EV-2103-0	24	48	P4	1000	Triode No. 2
12C5	12.6	JR-2763-0	23	91	P4	7500	
12C8	12.6	JR-0367-2	24	55	P4	1150	Pent. Sect. Cap=G
12C8	12.6	JR-0507-3	24	0	P1*	—	Diode No. 1
12C8	12.6	JR-0407-3	24	0	P1*	—	Diode No. 2
12CA5	12.6	JR-2763-0	24	90	P4	6000	
12CM6	12.6	EV-3917-0	21	85	P4	3700	
12CN5	12.6	JR-0673-2	0	0	P1*	—	Make no gas test
12CR6	12.6	JR-7563-2	11	74	P4	2200	Pent. Sect.
12CR6	12.6	JR-0203-0	0	0	P1*	—	Diode Sect.
12CS6	12.6	JR-7562-3	Use this setting for short check only.				
12CS6	12.6	JR-3602-7	43	35	P4	800	
12CT8	12.6	EV-8679-0	20	84	P4	3500	Pent. Sect.
12CT8	12.6	EV-2103-0	22	78	P4	2500	Triode Sect.
12CU5	12.6	JR-2763-0	37	88	P4	5000	
12CU6	12.6	JR-5047-0	50	87	P4	4500	Cap=P
12D4	12.6	JX-0503-0	0	65	P3*	—	
12DB5	12.6	EV-3912-0	30	90	P4	6500	
12DF5	12.6	EV-0608-0	0	20	P3*	—	Plate No. 1
12DF5	12.6	EV-0103-0	0	20	P3*	—	Plate No. 2
12DM5	12.6	JR-2763-0	23	91	P4	7500	
12DQ6	12.6	JR-5047-0	32	90	P4	6000	Cap-P
12F5	12.6	JR-0407-0	12	50	P4	1000	Cap=G
12F8	12.6	EV-9237-8	30	0	P1*	—	PENT. SECT. OK ABOVE 300 ON 3000 SCALE. MAKE NO GAS TEST
12F8	12.6	EV-0607-0	0	0	P1*	—	DIODE NO. 1. OK ABOVE 300 ON 3000 SCALE.
12F8	12.6	EV-0107-0	0	0	P1*	—	DIODE NO. 2. OK ABOVE 300 ON 3000 SCALE
12G4	12.6	JR-6307-0	23	73	P4	2000	
12G8	12.6	EV-0607-8	0	25	P1*	—	TRIODE NO. 1 MAKE NO GAS TEST
12G8	12.6	EV-0102-3	0	0	P1*	—	TRIODE NO 2 OK ABOVE DIODES OK. MAKE NO GAS TEST
12H6	12.6	JR-0507-2	0	61	P1*	—	Diode No. 1
12H6	12.6	JR-0304-2	0	61	P1*	—	Diode No. 2
12J5	12.6	JR-5307-2	23	73	P4	2000	
12J7	12.6	JR-0347-5	22	58	P4	1225	Cap=G
12J8	12.6	EV-0362-1	0	34	P1*	—	TETRODE SECT. MAKE NO GAS TEST
12J8	12.6	EV-0907-0	0	56	P1*	—	Diode No. 1
12J8	12.6	EV-0807-0	0	61	P1*	—	Diode No. 2
12K5	12.6	JR-5703-2	0	81	P4	3000	Make no gas test
12K7	12.6	JR-0347-5	19	68	P4	1450	Cap=G
12K8	12.6	JR-5347-6	11	50	P4	1000	Hexode Sect. Cap=G
12K8	12.6	JR-5647-3	0	77	P4	2400	Triode Sect.
12L6	12.6	JR-5347-0	30	90	P4	6500	
12L8	12.6	JW-2751-3	10	75	P4	2150	Pentode No. 1
12L8	12.6	JW-3451-2	10	75	P4	2150	Pentode No. 2
12Q7	12.6	JR-0307-0	17	40	P4	800	Triode Sect. Cap=G
12Q7	12.6	JR-0507-3	17	0	P1*	—	Diode No. 1
12Q7	12.6	JR-0407-3	17	0	P1*	—	Diode No. 2
12R5	12.6	JR-2763-0	23	91	P4	7000	
12S8	12.6	JX-0601-0	10	37	P4	900	Triode Sect. Cap-G
12S8	12.6	JX-0305-0	10	0	P1*	—	Diode No. 1
12S8	12.6	JX-0401-0	10	0	P1*	—	Diode No. 2
12S8	12.6	JX-0201-0	10	0	P1*	—	Diode No. 3
12SA7	12.6	JR-7346-5	21	34	P4	750	Ampl. Sect.
12SA7	12.6	JR-5346-7	21	34	P4	750	Osc. Sect.
12SC7	12.6	JX-4506-1	0	51	P4	1000	Triode No. 1
12SC7	12.6	JX-3106-5	0	51	P4	1000	Triode No. 2
12SF5	12.6	JX-3501-0	12	52	P4	1000	
12SF7	12.6	JX-1643-2	0	73	P4	2000	Pent. Sect.
12SF7	12.6	JX-0503-6	0	0	P1*	—	Diode Sect.
12SG7	12.6	JR-4765-2	0	83	P4	3300	
12SH7	12.6	JR-4765-2	0	84	P4	3400	
12SJ7	12.6	JR-4765-3	22	68	P4	1575	
12SK7	12.6	JR-4765-3	22	72	P4	1900	
12SL7	12.6	JX-4506-1	0	58	P4	1250	Triode No. 1
12SL7	12.6	JX-2103-5	0	58	P4	1250	Triode No. 2
12SN7	12.6	JX-4506-1	23	73	P4	2000	Triode No. 1
12SN7	12.6	JX-2103-5	23	73	P4	2000	Triode No. 2
12SQ7	12.6	JX-1603-2	0	31	P4	1000	Triode Sect.
12SQ7	12.6	JX-0503-6	0	0	P1*	—	Diode No. 1
12SQ7	12.6	JX-0403-6	0	0	P1*	—	Diode No. 2
12SR7	12.6	JX-1603-2	18	72	P4	1900	Triode Sect.
12SR7	12.6	JX-0503-6	18	0	P1*	—	Diode No. 1
12SR7	12.6	JX-0403-6	18	0	P1*	—	Diode No. 2
12SW7	12.6	JX-1603-2	14	72	P4	1900	Triode Sect.
12SW7	12.6	JX-0503-6	0	0	P1*	—	Diode No. 1
12SW7	12.6	JX-0403-6	0	0	P1*	—	Diode No. 2
12SX7	12.6	JX-4506-1	14	79	P4	2600	Triode No. 1
12SX7	12.6	JX-2103-5	14	79	P4	2600	Triode No. 2
12SY7	12.6	JR-7346-5	21	34	P4	750	Ampl. Section
12SY7	12.6	JR-5346-7	21	34	P4	750	Osc. Section
12U7	12.6	EV-0608-7	0	0	P1*	—	TRIODE NO. 1 OK ABOVE 300 ON 3000 SCALE MAKE NO GAS TEST
12U7	12.6	EV-0103-2	0	0	P1*	—	TRIODE NO 2 OK ABOVE 300 ON 3000 SCALE. MAKE NO GAS TEST
12V6	12.6	JR-5347-0	21	85	P4	3700	
12W6	12.6	JR-5347-0	30	90	P4	6500	
12X4	12.6	JR-0607-3	0	20	P3*	—	Plate No. 1
12X4	12.6	JR-0307-6	0	20	P3*	—	Plate No. 2
12Z3	12.6	JR-0203-0	0	35	P3*	—	
12Z5	12.6	JR-0605-0	0	40	P3*	—	Plate No. 1
12Z5	12.6	JR-0203-0	0	40	P3*	—	Plate No. 2
14A4	12.6	JR-6207-0	17	81	P4	2600	
14A5	12.6	JR-6237-0	12	82	P4	3000	
14A7	12.6	JR-6237-4	22	72	P4	1900	
14AF7	12.6	JR-5607-0	0	78	P4	2500	Triode No. 1
14AF7	12.6	JR-4302-0	0	78	P4	2500	Triode No. 2
14B6	12.6	JR-3207-0	0	54	P4	1100	Triode Sect.
14B6	12.6	JR-0607-2	0	0	P1*	—	Diode No. 1
14B6	12.6	JR-0507-2	0	0	P1*	—	Diode No. 2
14B8	12.6	JR-6257-4	27	49	P4	1000	Pent. Sect.
14B8	12.6	JR-4357-6	18	0	P4	500	Osc. Sect. OK over 240
14C5	12.6	JR-6237-0	23	84	P4	3700	
14C7	12.6	JR-6237-4	11	77	P4	2275	
14E6	12.6	JR-3207-0	12	71	P4	1800	Triode Sect.
14E6	12.6	JR-0607-2	12	0	P1*	—	Diode No. 1
14E6	12.6	JR-0507-2	12	0	P1*	—	Diode No. 2
14E7	12.6	JR-6257-0	24	61	P4	1300	Pent. Sect.
14E7	12.6	JR-0407-2	24	0	P1*	—	Diode No. 1
14E7	12.6	JR-0307-2	24	0	P1*	—	Diode No. 2
14F7	12.6	JR-5607-3	0	68	P4	1600	Triode No. 1
14F7	12.6	JR-4302-6	0	68	P4	1600	Triode No. 2
14F8	12.6	HS-8605-0	10	86	P4	4000	Triode No. 1
14F8	12.6	HS-1304-0	10	86	P4	4000	Triode No. 2
14H7	12.6	JR-6237-4	10	82	P4	3000	
14J7	12.6	JR-6257-4	18	38	P4	800	Heptode Sect.
14J7	12.6	JR-4357-6	18	51	P4	1000	Triode Sect.
14N7	12.6	JR-5607-3	23	73	P4	2000	Triode No. 1
14N7	12.6	JR-4302-6	23	73	P4	2000	Triode No. 2
14Q7	12.6	JR-6237-4	21	0	P4	500	Pent. Sect.
14Q7	12.6	JR-4237-6	21	40	P4	800	Osc. Sect.
14R7	12.6	JR-6257-0	10	82	P4	3000	Pent. Sect.
14R7	12.6	JR-0407-2	10	0	P1*	—	Diode No. 1
14R7	12.6	JR-0307-2	10	0	P1*	—	Diode No. 2
14S7	12.6	JR-6257-4	18	65	P4	1500	Heptode Sect.
14S7	12.6	JR-4357-6	0	65	P4	1500	Triode Sect.
14V7	12.6	JR-6237-4	6	86	P4	4000	
14W7	12.6	JR-6237-5	11	82	P4	3000	
14X7	12.6	JR-3204-0	0	37	P4	900	Triode Section
14X7	12.6	JR-0504-0	0	61	P1*	—	Diode No. 1
14X7	12.6	JR-0607-0	0	61	P1*	—	Diode No. 2
14Y4	12.6	JR-0607-0	0	33	P3*	—	Plate No. 1
14Y4	12.6	JR-0307-0	0	33	P3*	—	Plate No. 2
14Z3	12.6	JR-0203-0	0	43	P3*	—	
15	2.0	JR-0234-0	22	19	P4	625	Cap-G
15A6	12.6	EV-2713-6	11	91	P4	7500	
17AV5	20.0	JR-2573-0	30	89	P4	5500	MAKE "LINE TEST" AT 1400 ON 3000 SCALE
17AX4	20.0	JX-0503-0	0	60	P3*	—	MAKE "LINE TEST" AT 1400 ON 3000 SCALE
17C5	20.0	JR-2763-0	23	90	P4	6000	MAKE "LINE TEST" AT 1400 ON 3000 SCALE
17CA5	20.0	JR-2763-0	20	88	P4	5000	MAKE "LINE TEST" AT 1400 ON 3000 SCALE
17DQ6	20.0	JR-5047-0	32	90	P4	6000	Cap-P
17H3	20.0	EV-0301-0	0	40	P3*	—	MAKE "LINE TEST" AT 1300 ON 3000 SCALE
17L6	20.0	JR-5347-0	30	88	P4	5000	MAKE "LINE TEST" AT 1400 ON 3000 SCALE
17R5	20.0	JR-2763-0	23	88	P4	5000	MAKE "LINE TEST" AT 1400 ON 3000 SCALE
18A5	20.0	JR-2573-0	40	88	P4	4800	
19	2.0	JR-4500-0	15	51	P4	1000	Triode No. 1
19	2.0	JR-3200-0	15	51	P4	1000	Triode No. 2
19AU4	20.0	JX-0503-0	0	72	P3*	—	
19BG6	20.0	JR-5073-0	24	89	P4	6000	Cap=P
See note at end of chart.							
19C8	20.0	EV-8907-0	23	0	P4	500	Triode Sect.
19C8	20.0	EV-8607-0	0	60	P1*	—	Diode No. 1
19C8	20.0	EV-8203-0	0	60	P1*	—	Diode No. 2
19C8	20.0	EV-8107-0	0	60	P1*	—	Diode No. 3
19J6	20.0	JR-5207-6	28	78	P4	2500	Plate No. 1
19J6	20.0	JR-6307-5	28	78	P4	2500	Plate No. 2
See note at end of chart.							
19T8	20.0	EV-8907-6	11	56	P4	1200	Triode Section
See note at end of chart.							
19T8	20.0	EV-0607-1	0	50	P1*	—	Diode No. 1
19T8	20.0	EV-0203-7	0	50	P1*	—	Diode No. 2
19T8	20.0	EV-0107-8	0	50	P1*	—	Diode No. 3
19V8	20.0	EV-6103-8	11	56	P4	1200	Triode Sect.
19V8	20.0	EV-0903-2	0	0	P1*	—	Diode No. 1
19V8	20.0	EV-0708-6	0	63	P1*	—	Diode No. 2
19V8	20.0	EV-0203-8	0	63	P1*	—	Diode No. 3
19X3	20.0	EV-0903-0	0	66	P3*	—	
19X8	20.0	EV-7986-1	10	81	P4	3000	Pent. Sect.
19X8	20.0	EV-2386-1	20	81	P4	3000	Triode Sect.
19Y3	20.0	EV-0903-0	0	66	P3*	—	
RK2OA	7.5	JR-3024-0	0	78	P4	2500	Cap-P
21A6	20.0	EV-2083-9	46	90	P4	6000	Cap-P
22	3.0	JR-0230-0	45	0	P4	500	Cap=G
24A	2.5	JR-0234-0	12	51	P4	1000	Cap=G
25A6	25.0	JR-5347-0	43	76	P4	2300	
VT25A	7.5	JR-3200-0	30	73	P4	2000	
25A7	25.0	JR-5347-6	50	70	P4	1800	Pent. Sect.
25A7	25.0	JR-0602-3	0	50	P3*	—	Rect. Sect.
25AC5	25.0	JR-5307-0	0	63	P4	1500	
25AV5	25.0	JR-2573-0	50	86	P4	3900	
25AX4	25.0	JX-0503-0	0	60	P3*	—	
25B5	25.0	JR-4235-0	0	78	P4	2500	
25B6	25.0	JR-5347-0	52	87	P4	4000	
25B8	25.0	JR-0342-0	22	73	P4	2000	Pent. Sect. Cap=G
25B8	25.0	JR-7506-0	10	66	P4	1500	Triode Sect.
25BK5	25.0	EV-3186-0	0	91	P4	7000	
25BQ6	25.0	JR-5047-0	50	87	P4	4500	Cap=P
25C5	25.0	JR-2763-0	23	91	P4	7500	
25C6	25.0	JR-5347-0	37	90	P4	7000	
25CA5	25.0	JR-2763-0	24	90	P4	6000	
25CD6	25.0	JR-5073-0	42	90	P4	6500	Cap=P
25CU6	25.0	JR-5047-0	50	87	P4	4500	Cap=P
25D8	25.0	JR-0342-0	18	72	P4	1900	Pent. Sect. Cap=G
25D8	25.0	JR-5602-0	0	55	P4	1100	Triode Sect.
25D8	25.0	JR-5702-0	0	0	P1*	—	Diode Sect.
25DN6	25.0	JR-5073-0	43	90	P4	6000	Cap-P
25DQ6	25.0	JR-5047-0	32	90	P4	6000	Cap-P
25EC6	25.0	JR-5073-0	62	87	P4	4500	Cap-P
25F5	25.0	JR-2763-0	35	86	P4	4000	
25L6	25.0	JR-5347-2	30	90	P4	6500	
25N6	25.0	JR-5347-0	0	78	P4	2500	
25T	6.3	JR-3000-0	0	60	P4	1000	Cap=P
25W4	25.0	JX-0503-0	0	72	P3*	—	
25W6	25.0	JR-5347-0	30	90	P4	6500	
25Y5	25.0	JR-0504-0	0	40	P3*	—	Plate No. 1
25Y5	25.0	JR-0203-0	0	40	P3*	—	Plate No. 2
25Z5	25.0	JR-0504-0	0	40	P3*	—	Plate No. 1
25Z5	25.0	JR-0203-0	0	40	P3*	—	Plate No. 2
25Z5MG	25.0	JR-0507-0	0	40	P3*	—	Plate No. 1
25Z5MG	25.0	JR-0304-0	0	40	P3*	—	Plate No. 2
25Z6	25.0	JR-0507-2	0	40	P3*	—	Plate No. 1
25Z6	25.0	JR-0304-2	0	40	P3*	—	Plate No. 2
26	1.5	JR-3200-0	43	56	P4	1150	
26A6	25.0	JR-3567-2	9	85	P4	4000	
26A7	25.0	JW-2701-0	10	67	P5*	—	Triode No. 1
26A7	25.0	JW-3401-0	10	67	P5*	—	Triode No. 2
26BK6	25.0	JR-3702-5	6	58	P4	1250	Triode Sect.
26BK6	25.0	JR-0602-5	0	49	P1*	—	Diode No. 1
26BK6	25.0	JR-0502-7	0	49	P1*	—	Diode No. 2
26C6	25.0	JR-3702-0	18	72	P4	1900	Triode Sect.
26C6	25.0	JR-3602-0	18	0	P1*	—	Diode No. 1
26C6	25.0	JR-3502-0	18	0	P1*	—	Diode No. 2
26D6	25.0	JR-7562-3	11	63	P4	1425	Ampl. Section
26D6	25.0	JR-3562-7	0	67	P4	1600	Osc. Section
26E6	25.0	JR-5347-0	35	90	P4	6000	
26Z5W	25.0	EV-0608-0	0	55	P3*	—	Plate No. 1
26Z5W	25.0	EV-0103-0	0	55	P3*	—	Plate No. 2
27	2.5	JR-3204-0	41	49	P4	1000	
28D7	25.0	JR-7536-2	17	87	P4	4000	Pentode No. 1
28D7	25.0	JR-2436-7	17	87	P4	4000	Pentode No. 2
30	2.0	JR-3200-0	40	44	P4	900	
31	2.0	JR-3200-0	65	43	P4	925	
32	2.0	JR-0230-0	37	23	P4	640	Cap=G
32L7	35.0	JR-5347-0	34	87	P4	4800	Ampl. Sect.
32L7	35.0	JR-0602-3	0	50	P3*	—	Rect. Sect.
33	2.0	JR-3240-0	35	61	P4	1450	
RK33	6.3	JR-4506-0	38	62	P4	1375	Triode No. 1
RK33	6.3	JR-0302-0	38	62	P4	1375	Triode No. 2 Cap=G
34	2.0	JR-0230-0	33	17	P4	600	Cap=G
35	2.5	JR-0234-0	24	51	P4	1020	Cap=G
35A5	35.0	JR-6237-0	33	90	P4	5800	
35B5	35.0	JR-3562-0	34	88	P4	4500	
35C5	35.0	JR-2763-0	34	88	P4	4800	
35CD6	35.0	JR-5073-0	42	90	P4	6500	Cap=P
35L6	35.0	JR-5347-0	39	87	P4	4600	
35W4	BLST	JR-0367-0	—	—	—	—	Short on 1-2-3-4-5
35W4	35.0	JR-0507-0	0	55	P3*	—	Rect. Sect.
35Y4	BLST	JR-0247-0	—	—	—	—	Short on 1-2-3-4-5
35Y4	35.0	JR-0207-0	0	55	P3*	—	Rect. Sect.
35Z3	35.0	JR-0207-0	0	60	P3*	—	
35Z4	35.0	JR-0507-0	0	60	P3*	—	
35Z5	BLST	JR-0537-0	—	—	—	—	Short on 1-2-3-4-5
35Z5	35.0	JR-0507-0	0	60	P3*	—	Rect. Sect.
35Z6	35.0	JR-0507-0	0	60	P3*	—	Plate No. 1
35Z6	35.0	JR-0304-0	0	60	P3*	—	Plate No. 2
36	6.3	JR-0234-0	24	52	P4	1050	Cap=G
37	6.3	JR-3204-0	41	44	P4	900	
38	6.3	JR-0234-0	39	50	P4	1050	Cap=G
39/44	6.3	JR-0234-0	28	50	P4	1000	Cap=G
40	5.0	JR-3200-0	32	73	P4	209	MICROMHOS ONLY OK OVER 100 ON 3000 SCALE
40Z5	BLST	JR-0537-0	—	—	—	—	Short on 1-2-3-4-5
40Z5	50.0	JR-0507-0	0	60	P3*	—	
41	6.3	JR-4235-0	34	67	P4	1600	
42	6.3	JR-4235-0	29	73	P4	2000	
43	25.0	JR-4235-0	43	76	P4	2300	
45	2.5	JR-3200-0	61	72	P4	1850	
45Z3	50.0	HT-0208-0	0	50	P3*	—	
45Z5	BLST	JR-0537-0	—	—	—	—	Short on 1-2-3-4-5
45Z5	50.0	JR-0507-0	0	60	P3*	—	Rect. Sect.
46	2.5	JR-3240-0	30	73	P4	2000	
47	2.5	JR-3240-0	22	73	P4	2000	
48	25.0	JR-4235-0	58	73	P4	2000	
49	2.0	JR-3240-0	49	55	P4	1125	
50	7.5	JR-3200-0	61	65	P4	1500	
50A5	50.0	JR-6237-0	30	91	P4	7500	
50B5	50.0	JR-3562-0	23	91	P4	7500	
50BK5	50.0	EV-3186-0	0	91	P4	7000	
50C5	50.0	JR-2763-0	23	91	P4	7500	
50C6	50.0	JR-5347-2	44	90	P4	7000	
50L6	50.0	JR-5347-0	30	90	P4	6500	
50X6	50.0	JR-0607-5	0	55	P3*	—	Plate No. 1
50X6	50.0	JR-0302-5	0	55	P3*	—	Plate No. 2
50Y6	50.0	JR-0507-0	0	55	P3*	—	Plate No. 1
50Y6	50.0	JR-0304-0	0	55	P3*	—	Plate No. 2
50Y7	BLST	JR-0060-0	—	—	—	—	Short on 1-2-3-4-5
50Y7	50.0	JR-0507-0	0	55	P3*	—	Plate No. 1
50Y7	50.0	JR-0304-0	0	55	P3*	—	Plate No. 2
50Z7	BLST	JR-0060-0	—	—	—	—	Short on 1-2-3-4-5
50Z7	50.0	JR-0507-0	0	55	P3*	—	Plate No. 1
50Z7	50.0	JR-0304-0	0	55	P3*	—	Plate No. 2
51/51S	2.5	JR-0234-0	24	51	P4	1020	Cap=G
52	6.3	JR-3240-0	33	77	P4	2400	
53	2.5	JR-5604-2	12	65	P4	1500	Triode No. 1
53	2.5	JR-3204-6	12	65	P4	1500	Triode No. 2
55	2.5	JR-0205-0	39	49	P4	975	Triode Sect. Cap-G
55	2.5	JR-0405-0	39	0	P1*	—	DIODE NO. 1. OK OVER 300 ON 3000 SCALE.
55	2.5	JR-0305-0	39	0	P1*	—	DIODE NO. 2. OK OVER 300 ON 3000 SCALE.
56	2.5	JR-3204-0	29	65	P4	1450	
57	2.5	JR-0235-4	21	58	P4	1225	Cap-G
57A	6.3	JR-0235-4	21	58	P4	1225	Cap=G
58	2.5	JR-0235-4	24	66	P4	1450	Cap-G
58A/58AS	6.3	JR-0235-4	24	66	P4	1450	Cap=G
59	2.5	JR-4236-5	22	73	P4	2000	
HY-65	6.3	JR-5040-7	0	82	P4	3000	Cap-P
KT66	6.3	JR-5347-2	20	90	P4	6300	
VT67	2.0	JR-3200-0	40	44	P4	900	
HY-69	6.3	JR-3024-0	0	82	P4	3000	Cap-P
70A7	75.0	JR-5347-0	50	82	P4	3000	Pent. Sect.
70A7	75.0	JR-0200-0	50	55	P3*	—	Rect. Sect. Reverse Meter
70L7	75.0	JR-5346-0	41	87	P4	5000	Pent. Sect.
70L7	75.0	JR-0702-3	41	61	P3*	—	Rect. Sect.
71A	5.0	JR-3200-0	73	68	P4	1650	
75	6.3	JR-0205-0	11	34	P4	750	Triode Sect. Cap-G
75	6.3	JR-0405-2	11	0	P1*	—	Diode No. 1
75	6.3	JR-0305-2	11	0	P1*	—	Diode No. 2
75MG	6.3	JR-0407-0	11	34	P4	750	Triode Sect. Cap=G
75MG	6.3	JR-0507-0	11	0	P1*	—	Diode No. 1
75MG	6.3	JR-0607-0	11	0	P1*	—	Diode No. 2
76	6.3	JR-3204-0	29	65	P4	1450	
77	6.3	JR-0235-4	21	58	P4	1225	Cap=G
78	6.3	JR-0235-4	24	66	P4	1450	Cap=G
79	6.3	JR-0504-0	15	48	P4	1000	Triode No. 1 Cap-G
79	6.3	JR-3204-0	15	48	P4	1000	Triode No. 2
80	5.0	JR-0300-0	0	20	P3*	—	Plate No. 1
80	5.0	JR-0200-0	0	15	P3*	—	Plate No. 2
81	7.5	JR-0200-0	0	6	P1*	—	
82	2.5	JR-0300-0	0	67	P3*	—	Plate No. 1
82	2.5	JR-0200-0	0	61	P3*	—	Plate No. 2
83	5.0	JR-0300-0	0	70	P3*	—	Plate No. 1
83	5.0	JR-0200-0	0	65	P3*	—	Plate No. 2
83V	5.0	JR-0300-0	0	60	P3*	—	Plate No. 1
83V	5.0	JR-0200-0	0	60	P3*	—	Plate No. 2
84	6.3	JR-0304-0	0	35	P3*	—	Plate No. 1
84	6.3	JR-0204-0	0	35	P3*	—	Plate No. 2
85	6.3	JR-0205-0	39	49	P4	975	Triode Sect. Cap-G
85	6.3	JR-0405-2	39	0	P1*	—	Diode No. 1
85	6.3	JR-0305-2	39	0	P1*	—	Diode No. 2
85AS	6.3	JR-0205-0	28	52	P4	1100	Cap=G, Triode Sect.
85AS	6.3	JR-0405-2	28	0	P1*	—	Diode No. 1
85AS	6.3	JR-0305-2	28	0	P1*	—	Diode No. 2
89/89Y	6.3	JR-0235-4	37	66	P4	1550	Cap=G
99	3.0	JR-3200-0	55	73	P4	425	MICROMHOS ONLY OK OVER 200 ON 3000 SCALE
112A	5.0	JR-3200-0	44	70	P4	1650	
CK-113	50.0	JR-5347-6	48	71	P4	1800	Pent. Sect.
CK-113	50.0	JR-0602-0	0	50	P3*	—	Rect. Std.
HY-114	1.5	JR-0000-0	19	53	P4	1100	Right Cap=P Left Cap=G
117L7	117.0	JR-4357-0	37	86	P4	4000	Pent. Sect.
117L7	117.0	JR-0602-0	37	61	P3*	—	Rect. Sect.
117M7	117.0	JR-4357-0	37	86	P4	4000	Pent. Sect.
117M7	117.0	JR-0602-0	37	61	P3*	—	Rect. Sect.
117N7	117.0	JR-4356-0	37	87	P4	5000	Pent. Sect.
117N7	117.0	JR-0700-0	37	75	P3*	—	Rect. Sect. Reverse Meter
117P7	117.0	JR-4356-0	37	86	P4	4000	Pent. Sect.
117P7	117.0	JR-0700-0	37	61	P3*	—	Rect. Sect. Reverse Meter
117Z3	117.0	JR-0506-0	0	50	P3*	—	
117Z4	117.0	JR-0507-0	0	67	P3*	—	
117Z6	117.0	JR-0507-0	0	60	P3*	—	Plate No. 1
117Z6	117.0	JR-0304-0	0	60	P3*	—	Plate No. 2
X-155	6.3	EV-7608-9	20	86	P4	4000	Triode No. 1
X-155	6.3	EV-2103-9	20	86	P4	4000	Triode No. 2
C182	5.0	JR-3200-0	46	63	P4	1000	
C182-A	5.0	JR-3200-0	79	65	P4	1500	
182-B	5.0	JR-3200-0	58	65	P4	1500	
183	5.0	JR-3200-0	79	61	P4	1500	
TS-251	50.0	JR-5347-6	50	70	P4	1800	Pent. Sect.
TS-251	50.0	JR-0602-3	0	50	P3*	—	Rect. Sect.
396A	6.3	KR-7608-2	13	88	P4	5300	Triode No. 1
396A	6.3	KR-3402-8	13	88	P4	5300	Triode No. 2
399A	1.1	DX-6210-0	24	53	P4	1100	
420A	12.6	EV-6807-3	0	48	P4	1000	Triode No. 1
420A	12.6	EV-3102-6	0	48	P4	1000	Triode No. 2
482-A	5.0	JR-3200-0	79	61	P4	1500	
482-B	5.0	JR-3200-0	57	71	P4	1800	
483	5.0	JR-3200-0	79	61	P4	1350	
484	3.0	JR-3204-0	37	60	P4	1300	
484-A	3.0	JR-3204-0	37	60	P4	1300	
485	3.0	JR-3204-0	37	60	P4	1300	
486	3.0	JR-3204-0	43	73	P4	450	
CK502AX	1.1	DV-4120-0	35	73	P4	350	OK over 275
GL-502	6.3	JR-5367-0	∤	55	P3*	—	Strikes at about 70
CK503AX	1.1	DV-4120-0	40	73	P4	350	OK over 275
CK505AX	†	DV-4210-0	0	0	P1*	—	OK OVER 275 ON 3000 SCALE
See note at end of chart.							
CK506AX	1.1	DV-4120-0	58	0	P4	500	
CK510AX	†	EX-1230-0	0	0	P5*	—	SECT. NO. 1 OK OVER 200 ON 3000 SCALE.
See note at end of chart.							
CK510AX	†	EX-6530-0	0	0	P5*	—	SECT. NO. 2 OK OVER 200 ON 3000 SCALE.
CK512AX	†	DV-4210-0	0	0	P1*	—	OK OVER 300 ON 3000 SCALE
See note at end of chart.							
CK518AX	1.1	DV-4120-0	45	0	P5*	—	OK OVER DIODES OK.
CK522AX	1.1	DV-4120-0	40	0	P5*	—	OK OVER DIODES OK.
CK523AX	1.1	DV-4120-0	47	0	P5*	—	OK OVER DIODES OK.
CK524AX	1.1	DV-4120-0	73	0	P5*	—	OK OVER DIODES OK.
CK525AX	1.1	DV-4120-0	50	0	P5*	—	OK OVER DIODES OK.
CK526AX	1.1	DV-4120-0	59	0	P5*	—	OK OVER DIODES OK.
CK527AX	1.1	DV-4120-0	36	0	P5*	—	OK OVER 300 ON 3000 SCALE.
CK528AX	1.1	DV-4120-0	37	0	P5*	—	OK OVER DIODES OK.
CK529AX	1.1	DV-4120-0	64	0	P5*	—	OK OVER DIODES OK.
CK533AX	1.1	DV-4120-0	35	0	P5*	—	OK ABOVE 300 ON 3000 SCALE.
CK541DX	1.1	DV-4120-0	40	0	P5*	—	OK OVER 300 ON 3000 SCALE.
CK542DX	1.1	DV-4210-0	0	0	P1*	—	OK ABOVE 300 ON 3000 SCALE.
CK543DX	†	DV-4210-0	0	0	P1*	—	OK OVER 275 ON 3000 SCALE.
See note at end of chart.							
CK544DX	1.1	DV-4120-0	32	0	P5*	—	OK OVER 300 ON 3000 SCALE.
GL-546	6.3	JR-3752-0	∤	66	P3*	—	Strikes at about 72
CK547DX	1.1	DV-4120-0	39	0	P5*	—	OK OVER 300 ON 3000 SCALE.
CK548DX	1.1	DV-4120-0	54	0	P5*	—	OK OVER 300 ON 3000 SCALE.
CK556AX	1.1	ES-3100-0	37	51	P4	1000	
CK568AX	1.1	ES-3100-0	40	0	P4	500	
CK569AX	1.1	DV-4120-0	24	31	P4	750	
CK571AX	1.1	DU-7120-0	92	73	P4	150	OK over 100
CK573AX	1.1	CU-3100-0	34	73	P4	2000	
CK574AX	†	DV-4210-0	0	0	P1*	—	OK OVER 275 ON 3000 SCALE.
See note at end of chart.							
CK605CX	6.3	DU-7126-5	24	65	P4	1500	
CK606BX	6.3	CT-0104-0	0	70	P1*	—	Diode
CK608CX	6.3	DU-5106-0	26	81	P4	3000	
CK619CX	6.3	CT-4105-0	16	73	P4	2000	
629	2.5	JR-3204-0	∤	25	P3*	—	Strikes at about 73
717A	6.3	JR-4763-0	0	84	P4	3500	
801A	7.5	JR-3200-0	0	65	P4	1500	
802	6.3	JR-4036-5	22	73	P4	2000	Cap=P
807	6.3	JR-3024-0	33	85	P4	3800	Cap=P
809	6.3	JR-3000-0	0	68	P4	1700	Cap-P
811	6.3	JR-3000-0	0	62	P4	1400	Cap=P
812	6.3	JR-3000-0	0	75	P4	2200	Cap-P
814	10.0	JR-3024-0	0	80	P4	3000	Cap-P
815	6.3	HV-8043-1	31	86	P4	4000	PENT. NO. 1 LEFT CAP=P SHORT ON 3
815	6.3	CV-1043-8	31	86	P4	4000	PENT. NO. 2 RIGHT CAP=P
816	3.0	JR-0000-0	0	75	P3*	—	Cap-P
SD828A	6.3	EW-3152-0	29	53	P4	1100	
SD828E	6.3	EW-3051-2	27	60	P4	1350	Top Lead-P
834	7.5	JR-0000-0	0	70	P4	1800	Near Cap=G Far Cap=P
836	4.3	JR-0000-0	0	50	P2*	—	Cap-P
837	12.6	JR-4036-5	0	87	P4	4000	Cap-P
841	7.5	JR-3200-0	0	51	P4	1000	
842	7.5	JR-3200-0	61	56	P4	1150	
843	2.5	JR-3204-0	12	68	P4	1625	
864	1.1	JR-3200-0	46	22	P4	650	
865	7.5	JR-3020-0	34	19	P4	625	Cap=P
866A	4.3	JR-0000-0	0	75	P3*	—	Cap=P
879/2X2	2.5	JR-0000-0	0	73	P5*	—	Cap=P
884	6.3	JR-5307-0	∤	91	P5*	—	Strikes at about 78
885	2.5	JR-3204-0	∤	91	P5*	—	Strikes at about 72
SD917A	6.3	DU-2105-0	31	73	P4	—	OK OVER 300 ON 3000 SCALE.
SN944	6.3	EW-3051-2	26	64	P4	1325	Top Lead-P
SN946B	6.3	CT-0104-0	0	60	P1*	—	Diode
SN947C	6.3	CU-6135-0	54	81	P4	3000	
SN947D	6.3	DW-1572-0	54	81	P4	3000	
950	2.0	JR-3240-0	45	48	P4	950	
951/1B4	2.0	JR-0230-0	35	22	P4	640	Cap=G
SN953D	6.3	DW-1572-0	32	77	P4	2300	
954	6.3	JR-7036-4	21	54	P4	1100	Cap=P
SN954	6.3	ES-0103-0	0	50	P3*	—	
SN954B	6.3	DW-0205-0	0	50	P3*	—	
955	6.3	JR-4306-0	22	72	P4	1900	
SN955B	6.3	DW-1708-4	28	60	P4	1300	Triode No. 1
SN955B	6.3	DW-2508-4	28	60	P4	1300	Triode No. 2
956	6.3	JR-7036-4	17	65	P4	1500	Cap=P
957	1.5	JR-4300-0	28	23	P4	650	
SN957A	6.3	FT-4102-0	36	56	P4	1200	
958	1.5	JR-4300-0	41	57	P4	1200	
959	1.5	JR-7030-0	28	17	P4	600	Cap=P
SN972D	6.3	DW-1574-0	21	73	P4	2000	
SN973B	6.3	GT-1574-0	30	65	P4	1400	
SD993C	6.3	DW-1805-0	34	73	P4	2000	
SD995B	6.3	DW-1574-0	21	73	P4	2000	
FM-1000	6.3	JR-2453-6	12	65	P4	1500	No. 1 Grid
FM-1000	6.3	JR-6453-2	12	65	P4	1500	No. 2 Grid
CK-1005	6.3	GX-0305-0	0	92	P5*	—	Plate No. 1
CK-1005	6.3	GX-0503-0	0	92	P5*	—	Plate No. 2
SN1006	6.3	FT-4102-0	30	73	P4	—	OK OVER 300 ON 3000 SCALE.
CK1027	....	AP-0807-0	0	82	P5*	—	Cap=P
CK1042	....	AP-0105-0	0	40	P2*	—	
E1148	6.3	JR-0007-0	14	75	P4	2200	Upper Cap=P Lower Cap=G
1201	6.3	JS-1304-0	15	82	P4	3000	
1203	6.3	JR-0407-0	0	20	P1*	—	Diode
1204	6.3	HS-5314-0	10	71	P4	1800	
1229	2.0	JR-0230-0	37	18	P4	630	Cap=G
1230	2.0	JR-3200-0	40	44	P4	900	
1231	6.3	JR-6237-4	0	77	P4	2500	
1232	6.3	JR-6237-4	18	73	P4	2000	
1237	2.5	JR-0300-0	0	63	P3*	—	PLATE NO. 1. SHORT ON 1-3-4-5
1237	2.5	JR-0600-0	0	63	P3*	—	PLATE NO. 2. SHORT ON 1-3-4-5
1247	0.6	EV-0000-0	0	0	P1*	—	Top Lead=P
HY-1269	12.6	JR-3024-0	0	85	P4	4000	Cap=P, Short on 3
1273	6.3	JR-6237-4	11	77	P4	2275	
1274	6.3	JR-0507-3	0	33	P3*	—	Plate No. 1
1274	6.3	JR-0307-5	0	33	P3*	—	Plate No. 2
1276/205D	5.0	JR-3200-0	34	65	P4	1450	Bayonet pin is over the grid pin. Use an adapter.
1280	12.6	JR-6237-4	11	77	P4	2275	
1284	12.6	JR-6237-4	26	73	P4	2000	
1285	25.0	JR-5347-0	38	89	P4	5800	
1291	2.5	JR-6700-0	12	61	P4	1500	Triode No. 1
1291	2.5	JR-3200-0	25	61	P4	1500	Triode No. 2
1293	1.5	JR-6200-0	30	61	P4	1300	
1294	1.5	JR-0407-0	0	0	P1*	—	Diode
1299	2.5	JR-6230-0	37	74	P4	2100	
SR1553D	6.3	JR-2305-0	16	81	P4	3000	
1603	6.3	JR-0235-4	21	58	P4	1225	Cap=G
1609	1.1	JR-3240-0	22	32	P4	725	
1612	6.3	JR-0347-5	23	24	P4	650	Cap Grid, Cap=G
1612	6.3	JR-5347-2	27	24	P4	650	Pin Grid
1613	6.3	JR-5347-0	0	76	P4	2250	
1614	6.3	JR-5347-2	23	89	P4	5000	
1616	4.3	JR-0000-0	0	38	P2*	—	Cap=P
1619	2.5	JR-5340-7	12	84	P4	3400	
1620	6.3	JR-0347-5	22	58	P4	1225	Cap=G
1621	6.3	JR-5347-0	29	73	P4	2000	
1622	6.3	JR-5347-0	23	89	P4	5000	
1623	6.3	JR-3000-0	0	75	P4	2200	Cap=P
1624	2.5	JR-3020-0	17	87	P4	4000	Cap=P
1625	12.6	JR-4036-0	33	82	P4	3200	Cap=P
1626	12.6	JR-5307-0	52	74	P4	2100	
1629	12.6	JR-5407-0	....	....	P4	—	Eye Open
1629	12.6	JR-5437-0	....	....	P4	—	Eye Closed
1631	12.6	JR-5347-2	23	89	P4	5000	
1632	12.6	JR-5347-0	18	92	P4	8000	
1633	25.0	JX-4506-0	0	84	P4	3400	Triode No. 1
1633	25.0	JX-2103-0	0	84	P4	3400	Triode No. 2
1634	12.6	JX-4506-2	0	51	P4	1000	Triode No. 1
1634	12.6	JX-3106-2	0	51	P4	1000	Triode No. 2
1635	6.3	JR-4307-0	0	40	P4	850	Triode No. 1
1635	6.3	JR-5607-0	0	40	P4	850	Triode No. 2
1642	6.3	JR-4506-0	38	62	P4	1375	Triode No. 1
1642	6.3	JR-0302-0	38	62	P4	1375	Triode No. 2 Cap=G
1644	12.6	JW-2751-3	10	75	P4	2150	Pentode No. 1
1644	12.6	JW-3451-2	10	75	P4	2150	Pentode No. 2
1654	1.5	DX-0000-0	0	0	P2*	—	Reads 500 on meter. Short on 3
1658	2.0	JR-3200-0	40	44	P4	900	
1851	6.3	JR-0347-5	12	87	P4	4000	Cap-G
1852	6.3	JR-4765-3	10	87	P4	4500	
1853	6.3	JR-4765-3	0	84	P4	3500	
2050	6.3	JR-5307-6	∤	93	P5*	—	Strikes at about 38
2051	6.3	JR-5307-6	∤	93	P5*	—	Strikes at about 34
5516	6.3	JR-5032-0	20	85	P4	4000	Cap=P, Short on 3
5517	....	AP-0807-0	0	35	P2*	—	Cap=P
5556	4.3	JR-3200-0	26	47	P4	980	
5591	6.3	JR-3562-0	24	65	P4	1500	
5603	6.3	JR-4760-3	37	87	P4	5300	
5608-A	2.5	JR-5604-2	12	65	P4	1500	Triode No. 1
5608-A	2.5	JR-3204-6	12	65	P4	1500	Triode No. 2
5610	6.3	JR-6302-0	27	87	P4	4000	
5618	6.3	DX-6218-0	24	82	P4	3000	
5633	6.3	EW-3051-2	26	64	P4	1325	Top Lead=P
5634	6.3	EW-3051-2	27	60	P4	1350	Top Lead=P
5635	6.3	DW-1708-4	28	60	P4	1300	Triode No. 1
5635	6.3	DW-2508-4	28	60	P4	1300	Triode No. 2
5636	6.3	DW-1572-4	22	59	P4	1300	
5637	6.3	DU-2105-0	31	73	P4	—	OK OVER 300 ON 3000 SCALE
5638	6.3	EW-3152-0	29	53	P4	1100	
5639	6.3	DW-1572-0	32	77	P4	2300	
5640	6.3	DW-1572-0	54	81	P4	3000	
5641	6.3	DW-0205-0	0	50	P3*	—	
5642	1.1	BS-0000-0	0	0	P3*	—	TOP LEAD-P. CONNECT FIL. LEADS TO PINS 1 AND 7. OK OVER 700 ON 3000 SCALE.
5643	6.3	DW-7105-2	∤	70	P3*	—	Strikes at about 75
5645	6.3	FT-4102-0	36	56	P4	1200	
5646	6.3	FT-4102-0	30	73	P4	—	OK OVER 300 ON 3000 SCALE.
5647	6.3	CT-0104-0	0	60	P1*	—	Diode
5654	6.3	JR-3562-0	24	67	P4	1500	
5659	12.6	JR-5347-0	22	81	P4	3000	
5660	12.6	JR-0367-0	8	60	P4	1325	Pent. Sect. Cap=G
5660	12.6	JR-0567-0	0	0	P1*	—	Diode No. 1
5660	12.6	JR-0467-0	0	0	P1*	—	Diode No. 2
5661	12.6	JR-4765-3	21	73	P4	2000	
5662	6.3	JR-3705-0	∤	92	P5*	—	Strikes at about 34
5663	6.3	JR-3752-0	∤	70	P3*	—	Strikes at about 76
5670	6.3	KR-7608-0	13	88	P4	5300	Triode No. 1
5670	6.3	KR-3402-0	13	88	P4	5300	Triode No. 2
5672	1.1	DV-4120-0	50	22	P4	650	
5676	1.1	ES-3100-0	37	51	P4	1000	
5677	1.1	ES-3100-0	40	0	P4	500	
5678	1.1	DV-4120-0	24	31	P4	750	
5679	6.3	JR-0607-5	0	49	P1*	—	Diode No. 1
5679	6.3	JR-0302-5	0	49	P1*	—	Diode No. 2
5686	6.3	EV-2763-0	18	83	P4	3100	
5687	12.6	EV-7906-1	29	88	P4	5000	Triode No. 1
5687	12.6	EV-2103-9	29	88	P4	5000	Triode No. 2
5690	6.3	JW-0507-3	0	68	P3*	—	Unit No. 1
5690	6.3	RS-0304-5	0	68	P3*	—	Unit No. 2
5691	6.3	JX-4506-1	0	65	P4	1400	Triode No. 1
5691	6.3	JX-2103-5	0	65	P4	1400	Triode No. 2
5692	6.3	JX-4506-1	23	73	P4	2000	Triode No. 1
5692	6.3	JX-2103-5	23	73	P4	2000	Triode No. 2
5693	6.3	JR-4765-3	22	68	P4	1575	
5694	6.3	JR-4302-0	0	73	P4	2000	Triode No. 1
5694	6.3	JR-5607-0	0	73	P4	2000	Triode No. 2
5696	6.3	JR-3602-5	∤	77	P3*	—	Strikes at about 77
5702	6.3	DU-7126-5	24	65	P4	1500	
5703	6.3	DU-5106-0	26	81	P4	3000	
5704	6.3	CT-0104-0	0	70	P1*	—	Diode
5718	6.3	DW-1805-7	34	72	P4	1900	
5719	6.3	DW-1805-7	23	35	P4	800	
5725	6.3	JR-3562-7	14	70	P4	1750	
5726	6.3	JR-0703-0	0	61	P1*	—	Diode No. 1
5726	6.3	JR-0205-0	0	61	P1*	—	Diode No. 2
5727	6.3	JR-3602-5	∤	93	P5*	—	STRIKES AT ABOUT 90
5731	6.3	JR-4306-0	25	64	P4	1500	
5732	6.3	JR-0347-5	19	63	P4	1450	Cap=G
5742	4.3	JR-3200-0	10	39	P4	850	
5744	6.3	CT-4105-0	16	73	P4	2000	
5749	6.3	JR-3567-2	9	83	P4	3300	
5750	6.3	JR-7562-3	11	63	P4	1425	Ampl. Sect.
5750	6.3	JR-3562-7	0	67	P4	1600	Osc. Sect.
5751	12.6	EV-7608-0	12	58	P4	1250	Plate No. 1
5751	12.6	EV-2103-0	12	58	P4	1250	Plate No. 2
5755	12.6	EV-6807-3	0	48	P4	1000	Triode No. 1
5755	12.6	EV-3102-6	0	48	P4	1000	Triode No. 2
5763	6.3	EV-9167-3	8	91	P4	7000	
5784	6.3	DU-7126-5	20	70	P4	1800	
5785	1.1	GX-0100-0	0	0	P1*	—	Diode
5812	6.3	JR-3560-2	34	86	P4	4300	
5814	12.6	EV-7608-0	24	75	P4	2200	Triode No. 1
5814	12.6	EV-2103-0	24	75	P4	2200	Triode No. 2
5823	......	AP-8301-0	76	82	P5*	—	
5824	25.0	JR-5347-0	52	87	P4	4000	
5825	1.5	JR-0000-0	0	0	P5*	—	CAP-P. OK OVER 300 ON 3000 SCALE.
5829	6.3	DV-0607-0	0	61	P1*	—	Diode No. 1
5829	6.3	DV-0102-0	0	61	P1*	—	Diode No. 2
5839	25.0	JR-0507-3	0	28	P3*	—	Plate No. 1
5839	25.0	JR-0307-5	0	28	P3*	—	Plate No. 2
5840	6.3	DW-1574-0	22	78	P4	2500	
5844	6.3	JR-5207-0	26	81	P4	3000	Triode No. 1
5844	6.3	JR-6307-0	26	81	P4	3000	Triode No. 2
5851	2.5	HR-8360-0	30	67	P4	1600	
5852	6.3	JR-0507-0	0	30	P3*	—	Plate No. 1
5852	6.3	JR-0307-0	0	30	P3*	—	Plate No. 2
5879	6.3	EV-1873-9	21	48	P4	1000	
5881	6.3	JR-5347-2	23	89	P4	5000	
5886	1.1	DU-7210-0	34	0	P1*	—	OK OVER 200 ON 3000 SCALE.
5896	6.3	DW-0507-4	0	60	P3*	—	Plate No. 1
5896	6.3	DW-0102-4	0	60	P3*	—	Plate No. 2
5897	6.3	DW-1805-0	34	73	P4	2000	
5899	6.3	DW-1574-0	21	73	P4	2000	
5900	6.3	DW-1574-0	21	73	P4	2000	
5902	6.3	DW-1572-0	43	86	P4	4200	
5903	25.0	DW-0507-4	0	60	P3*	—	Plate No. 1
5903	25.0	DW-0102-4	0	60	P3*	—	Plate No. 2
5904	25.0	DW-1805-0	43	48	P4	1000	
5905	25.0	DW-1572-0	35	48	P4	1000	
5906	25.0	DW-1572-0	23	73	P4	2000	
5907	25.0	DW-1572-0	36	56	P4	1200	
5908	25.0	DW-1572-4	40	48	P4	1000	
5910	1.5	DX-6210-0	19	27	P4	700	
5915	6.3	JR-7562-3	20	56	P4	1200	Ampl. Sect.
5915	6.3	JR-3562-7	10	65	P4	1500	Osc. Sect.
5916	25.0	DW-1572-4	22	59	P4	1300	
5930	2.5	JR-3200-0	67	82	P4	3000	
5933	6.3	JR-3024-0	33	85	P4	3800	Cap-P
5963	12.6	EV-7608-0	30	73	P4	2000	Triode No. 1
5963	12.6	EV-2103-0	30	73	P4	2000	Triode No. 2
5964	6.3	JR-5207-6	24	81	P4	3000	Triode No. 1
5964	6.3	JR-6307-5	24	81	P4	3000	Triode No. 2
5965	12.6	EV-7608-1	24	81	P4	3000	Triode No. 1
5965	12.6	EV-2103-6	24	81	P4	3000	Triode No. 2
5967	1.1	ES-6801-3	39	48	P4	1000	Triode No. 1
5967	1.1	ES-3108-6	39	48	P4	1000	Triode No. 2
5971	1.1	FT-2100-0	20	59	P4	1300	
5975	6.3	EV-3102-0	34	79	P4	2700	
5977	6.3	DW-1805-3	40	73	P4	2000	
5987	6.3	DW-1205-0	74	71	P4	1850	
5992	6.3	JR-5347-0	21	84	P4	3500	
5993	6.3	DX-0905-1	0	35	P3*	—	Plate No. 1
5993	6.3	DX-0105-9	0	35	P3*	—	Plate No. 2
5995	6.3	ET-0105-0	0	55	P3*	—	Leads=1-3-4-5
6005	6.3	JR-3562-0	21	85	P4	3700	
6007	1.1	DV-4210-0	20	0	P1*	—	OK OVER 275 ON 3000 SCALE.
6008	0.6	DV-4210-0	24	0	P1*	—	OK OVER 90 ON 3000 SCALE.
6012	6.3	JR-3502-7	∤	92	P5*	—	Strikes at about 85
6021	6.3	DW-7805-0	25	78	P4	2500	Triode No. 1
6021	6.3	DW-2104-0	25	78	P4	2500	Triode No. 2
6026	6.3	EV-7803-0	32	79	P4	2700	
6029	1.1	CU-3100-0	34	73	P4	2000	
6052	6.3	DW-0507-4	0	60	P3*	—	Plate No. 1
6052	6.3	DW-0102-4	0	60	P3*	—	Plate No. 2
6055	25.0	DW-1805-0	43	48	P4	1000	
6072	12.6	EV-7608-0	15	58	P4	1250	Triode No. 1
6072	12.6	EV-2103-0	15	58	P4	1250	Triode No. 2
6080	7.5	JX-4506-1	100	83	P4	3400	Triode No. 1
6080	7.5	JX-2103-5	100	83	P4	3400	Triode No. 2
6082	25.0	JX-4506-1	100	83	P4	3400	Triode No. 1
6082	25.0	JX-2103-5	100	83	P4	3400	Triode No. 2
6084	6.3	EV-9613-8	20	60	P4	1300	
6085	12.6	EV-7608-0	11	78	P4	2500	Triode No. 1
6085	12.6	EV-2103-0	11	78	P4	2500	Triode No. 2
6086	20.0	EV-2613-9	20	87	P4	4500	
6087	5.0	HR-0600-0	0	30	P3*	—	Plate No. 1
6087	5.0	HR-0400-0	0	30	P3*	—	Plate No. 2
6088	1.1	DV-4120-0	34	0	P5*	—	
6094	6.3	DV-1428-0	21	85	P4	3700	
6101	6.3	JR-5207-6	22	81	P4	3000	Triode No. 1
6101	6.3	JR-6307-5	22	81	P4	3000	Triode No. 2
6106	5.0	HR-0600-0	0	25	P3*	—	Plate No. 1
6106	5.0	HR-0400-0	0	25	P3*	—	Plate No. 2
6110	6.3	DW-0507-4	0	45	P1*	—	Diode No. 1
6110	6.3	DW-0102-4	0	45	P1*	—	Diode No. 2
6111	6.3	DW-7805-0	32	81	P4	3000	Triode No. 1
6111	6.3	DW-2104-0	32	81	P4	3000	Triode No. 2
6112	6.3	DW-7805-0	27	35	P4	800	Triode No. 1
6112	6.3	DW-2104-0	27	35	P4	800	Triode No. 2
6113	6.3	JX-4506-1	0	58	P4	1250	Triode No. 1
6113	6.3	JX-2103-5	0	58	P4	1250	Triode No. 2
6134	6.3	JR-4765-3	10	87	P4	4500	
6135	6.3	JR-6307-0	24	75	P4	2200	
6136	6.3	JR-3567-2	16	76	P4	2300	
6137	6.3	JR-4765-3	22	72	P4	1900	
6145	6.3	JR-6237-4	0	90	P4	6000	
6146	6.3	JR-5032-7	28	91	P4	7000	Cap=P
6152	6.3	EV-3102-0	34	79	P4	2700	
6159	25.0	JR-5032-7	28	91	P4	7000	Cap=P
6169	6.3	DW-1204-0	23	73	P4	2000	
6184	6.3	DW-0204-8	0	54	P1*	—	Diode No. 1
6184	6.3	DW-0705-8	0	54	P1*	—	Diode No. 2
6186	6.3	JR-3562-0	0	82	P4	3000	
6197	6.3	EV-2631-7	18	88	P4	5000	
6201	12.6	EV-7608-0	10	86	P4	4000	Triode No. 1
6201	12.6	EV-2103-0	10	86	P4	4000	Triode No. 2
6202	6.3	JR-0607-3	0	20	P3*	—	Plate No. 1
6202	6.3	JR-0307-6	0	20	P3*	—	Plate No. 2
6203	6.3	EV-0907-1	0	38	P3*	—	Plate No. 1
6203	6.3	EV-0107-9	0	38	P3*	—	Plate No. 2
6205	6.3	DW-1572-4	22	78	P4	2500	
6211	12.6	EV-7608-2	30	73	P4	2000	Triode No. 1
6211	12.6	EV-2103-7	30	73	P4	2000	Triode No. 2
6216	6.3	EV-2173-0	20	93	P4	10000	
6247	6.3	DW-2805-0	14	65	P4	1500	
6265	6.3	JR-3562-7	15	73	P4	2000	
6293	6.3	JR-5032-0	27	94	P4	7300	Cap=P
6350	12.6	EV-8607-3	31	81	P4	3000	Triode No. 1
6350	12.6	EV-3102-8	31	81	P4	3000	Triode No. 2
6355	6.3	FR-3827-0	0	—	P4	—	Eye 1 Open Eye 2 Closed
6355	6.3	FR-8327-0	0	—	P4	—	Eye 2 Open Eye 1 Closed
6386	6.3	KR-7608-5	20	86	P4	4000	Triode No. 1
6386	6.3	KR-3402-5	20	86	P4	4000	Triode No. 2
6397	2.5	HR-8360-0	30	72	P4	1950	
6417	12.6	EV-9167-3	8	91	P4	7000	
6463	12.6	EV-8607-1	27	85	P4	4000	Triode No. 1
6463	12.6	EV-3102-6	27	85	P4	4000	Triode No. 2
6485	6.3	JR-3567-2	11	86	P4	5000	
6660	6.3	JR-3567-2	9	83	P4	3300	
6661	6.3	JR-3562-7	15	73	P4	2000	
6662	6.3	JR-3562-7	0	85	P4	3800	
6663	6.3	JR-0703-6	0	61	P1*	—	Diode No. 1
6663	6.3	JR-0205-6	0	61	P1*	—	Diode No. 2
6669	6.3	JR-3562-0	21	85	P4	3700	
6677	6.3	EV-2631-7	18	88	P4	5000	
6678	6.3	EV-2637-0	15	76	P4	2250	Pent. Sect.
6678	6.3	EV-9108-0	16	87	P4	4500	Triode Sect.
6679	12.6	EV-7608-0	10	86	P4	4000	Triode No. 1
6679	12.6	EV-2103-0	10	86	P4	4000	Triode No. 2
6680	12.6	EV-7608-0	24	75	P4	2200	Triode No. 1
6680	12.6	EV-2103-0	24	75	P4	2200	Triode No. 2
6681	12.6	EV-7608-0	12	58	P4	1250	Triode No. 1
6681	12.6	EV-2103-0	12	58	P4	1250	Triode No. 2
6690	6.3	DW-7508-0	22	78	P4	2500	Triode No. 1
6690	6.3	DW-2104-0	22	78	P4	2500	Triode No. 2
6754	6.3	EV-0907-0	0	65	P3*	—	Plate No. 1
6754	6.3	EV-0103-0	0	65	P3*	—	Plate No. 2
6829	12.6	EV-7608-0	24	81	P4	3000	Triode No. 1
6829	12.6	EV-2103-0	24	81	P4	3000	Triode No. 2
7193	6.3	JR-0007-0	0	82	P4	3000	Upper Cap=G Lower Cap=P
8016/1B3	1.1	JR-0000-0	0	60	P5*	—	CAP-P. OK ABOVE DIODES OK
9001	6.3	JR-3567-0	21	84	P4	1100	
9002	6.3	JR-6307-0	22	72	P4	1900	
9003	6.3	JR-3562-0	17	66	P4	1500	
9004	6.3	JR-0304-0	0	55	P1*	—	Diode
9005	4.3	JR-0403-0	0	60	P1*	—	Diode
9006	6.3	JR-0307-0	0	24	P1*	—	Diode
38142	7.5	JR-3200-0	37	76	P4	2200	
XXB	2.5	BY-5600-0	10	55	P4	1100	Triode No. 1
XXB	2.5	JR-4300-0	10	55	P4	1100	Triode No. 2
XXD	12.6	JR-5607-0	0	78	P4	2500	Triode No. 1
XXD	12.6	JR-4302-0	0	78	P4	2500	Triode No. 2
XXFM	6.3	JR-3204-0	0	37	P4	900	Triode Sect.
XXFM	6.3	JR-0504-0	0	61	P1*	—	Diode No. 1
XXFM	6.3	JR-0607-0	0	61	P1*	—	Diode No. 2
XXL	6.3	JR-6207-0	0	82	P4	3000	

NOTE: When testing the 1V2 tube, make LINE TEST at 1000 instead of 1500 and set filament switch on 1.1. Tubes should read above DIODES OK.

When testing the 19J6 tube with the 532-534 tube testers, use 1250 for LINE TEST instead of 1500. Set filament switch on 25. Set Bias on 25. That will reduce the filament voltage to 20 volts.

When testing 19T8 tube with the 532-534 tube testers, use 1250 for LINE TEST instead of 1500. Set filament switch on 25. Set Bias on 0. That will reduce the filament voltage to 20 volts.

When testing the 19BG6 tubes with testers not having 20 volt Fil. Tap, set FIL. on 25 volts and make LINE TEST with meter pointer on (?).

A dagger † in the FIL. column means that on tube testers not having the 0.6 volt filament tap the filament switch should be set on 1.1 and LINE TEST made at 1100 on the 3000 scale. The MICROMHOS switch should be set on English.

SUBMINIATURE TUBES:

ROUND—Leads are numbered in a clockwise direction and Lead No. 1 is identified by an arrow on the side of the tube.

FLAT—Lead No. 1 is identified by a red dot.

1LG5	1.5 **JR**-6234-0	25	50	P4	1050	
1LH4	1.5 **JR**-6200-0	16	73	P4	275	Triode Sect. MICROMHOS ONLY OK OVER 220 ON 3000 SCALE
1LH4	1.5 **JR**-6400-0	16	0	P1*	......	Diode Sect.
1LN5	1.5 **JR**-6234-0	11	34	P4	750	
1N5	1.5 **JR**-0340-0	11	34	P4	750	Cap = G
1N6	1.5 **JR**-5340-0	43	38	P4	800	Pent. Sect.
1N6	1.5 **JR**-0600-0	43	0	P1*	......	Diode Sect.
1P5	1.5 **JR**-0340-0	11	38	P4	800	Cap = G
1Q5	1.5 **JR**-5340-0	37	74	P4	2100	
1Q6	1.1 **EV**-2780-0	36	73	P4	......	PENT. SECT. OK OVER 250 ON 3000 SCALE.
1Q6	1.1 **EV**-0600-0	0	0	P1*	......	DIODE SECT. OK OVER 300 ON 3000 SCALE.
1R4	1.5 **JR**-0407-0	0	0	P1*	......	Diode
1R5	1.5 **DX**-8106-2	60	42	P4	900	
1S4	1.5 **DX**-1280-0	43	65	P4	1500	
1S5	1.5 **DX**-6580-0	34	11	P4	525	Pent. Sect.
1S5	1.5 **DX**-0180-0	34	0	P1*	......	Diode Sect.
1S6	1.1 **EV**-3180-0	35	73	P4	......	PENT. SECT. OK OVER 270 ON 3000 SCALE
1S6	1.1 **EV**-0600-0	0	0	P1*	......	DIODE SECT. OK OVER 350 ON 3000 SCALE
1SA6	1.5 **JR**-4763-0	23	48	P4	950	
1SB6	1.5 **JR**-7340-0	27	24	P4	650	Pent. Sect.
1SB6	1.5 **JR**-7500-0	27	0	P1*	......	Diode Sect.
1T4	1.5 **DX**-6210-0	34	34	P4	750	
1T5	1.5 **JR**-5340-0	45	56	P4	1150	
1T6	1.1 **EV**-3186-0	23	73	P4	......	PENT. SECT. OK OVER 250 ON 3000 SCALE.
1T6	1.1 **EV**-0600-0	0	0	P1*	......	DIODE SECT. OK OVER 350 ON 3000 SCALE.
1U4	1.5 **DX**-6210-0	14	43	P4	900	
1U5	1.5 **DX**-6210-0	34	11	P4	525	Pent. Sect.
1U5	1.5 **DX**-6810-0	34	0	P1*	......	Diode Sect.
1U6	1.5 **DX**-6251-8	25	48	P4	1000	Ampl. Sect.
1U6	1.5 **DX**-8156-2	5	0	P4	500	Osc. Sect.
1V	6.3 **JR**-0203-0	0	49	P3*	......	
1V2	0.6 **EV**-0900-0	0	12	P5*	......	
See note at end of chart.						
1V5	1.1 **EV**-2780-0	44	27	P4	700	
1V6	1.1 **EX**-3120-6	29	0	P5*	......	PENT. SECT. OK OVER DIODES OK.
1V6	1.1 **EX**-5600-1	50	0	P5*	......	TRIODE SECT. OK OVER DIODES OK.
1W4	1.5 **DX**-6210-0	49	45	P4	925	
1W5	1.1 **EV**-2780-0	33	73	P4	......	OK OVER 300 ON 3000 SCALE.
1X2	1.1 **BS**-0000-0	0	60	P5*	......	CAP=P OK ABOVE DIODES OK.
1Z2	1.5 **DS**-0000-0	0	70	P5*	......	Cap – P
2A3	2.5 **JR**-3200-0	67	82	P4	3000	
2A4	2.5 **JR**-5300-0	#	73	P3*	......	Strikes at about 61
2A5	2.5 **JR**-4235-0	29	73	P4	2000	
2A6	2.5 **JR**-0205-0	11	34	P4	750	Triode Sect. Cap – G
2A6	2.5 **JR**-0405-0	11	0	P1*	......	Diode No. 1
2A6	2.5 **JR**-0305-0	11	0	P1*	......	Diode No. 2
2A7	2.5 **JR**-0236-5	22	50	P4	1000	Pent. Sect. Cap = G
2A7	2.5 **JR**-5436-0	30	73	P4	400	Osc. Sect. MICROMHOS ONLY OK OVER 320 ON 3000 SCALE
2AF4	2.5 **JR**-2305-0	41	81	P4	3000	
2B3	1.5 **JR**-0000-0	0	60	P5*	......	CAP=P OK ABOVE DIODES OK. SHORT ON 3
2B4	2.5 **JR**-3204-0	#	91	P5*	......	Strikes at about 72
2B6	2.5 **JR**-4236-0	15	60	P4	1500	
2B7	2.5 **JR**-0236-0	30	50	P4	1000	Pent. Sect. Cap = G
2B7	2.5 **JR**-0536-0	30	0	P1*	......	Diode No. 1
2B7	2.5 **JR**-0436-0	30	0	P1*	......	Diode No. 2
2B22	6.3 **JR**-0007-0	0	62	P3*	......	Top Washer – P
2B23	6.3 **JR**-0307-0	0	30	P2*	......	
2BN4	2.0 **JR**-2503-0	18	86	P4	4000	
2C4	2.5 **HT**-1508-0	#	93	P5*	......	Strikes at about 73
2C21	6.3 **JR**-4506-0	38	62	P4	1375	Triode No. 1
2C21	6.3 **JR**-0302-0	38	62	P4	1375	Triode No. 2 Cap = G
2C22	6.3 **JR**-0007-0	13	82	P4	3000	Upper Cap = G Lower Cap = P
2C26	6.3 **JR**-0007-0	18	66	P4	1500	Upper Cap = P Lower Cap – G
2C40	6.3 **JR**-0007-0	17	81	P4	2800	Cap = P. Ring – G.
2C43	6.3 **JR**-0007-0	17	81	P4	3000	Cap = P. Ring = G.
2C45	7.5 **JR**-3200-0	37	76	P4	2200	
2C50	12.6 **JX**-2103-0	41	69	P4	1800	Triode No. 1
2C50	12.6 **JX**-4506-0	41	69	P4	1800	Triode No. 2
2C51	6.3 **KR**-7608-2	13	88	P4	5300	Triode No. 1
2C51	6.3 **KR**-3402-8	13	88	P4	5300	Triode No. 2
2C52	12.6 **JX**-4506-1	15	48	P4	1000	Triode No. 1
2C52	12.6 **JX**-2103-5	15	48	P4	1000	Triode No. 2
2C53	6.3 **JR**-5007-0	0	73	P4	400	MICROMHOS ONLY. OK OVER 320 ON 3000 SCALE. CAP – P
2CY5	2.5 **JR**-3562-0	23	81	P4	3000	
2D21	6.3 **JR**-3602-5	#	93	P5*	......	Strikes at about 30
2E5	2.5 **JR**-5403-0	....	....	P4	......	Eye Open
2E5	2.5 **JR**-5423-0	....	....	P4	......	Eye Closed
2E22	6.3 **JR**-3024-0	0	87	P4	4000	Cap = P
2E24	6.3 **JR**-5030-0	35	82	P4	3200	Short on 3, Cap – P
2E25	6.3 **JR**-5040-7	0	82	P4	3000	Cap – P
2E26	6.3 **JR**-5032-7	37	84	P4	3500	Cap – P
2E30	6.3 **JR**-3560-2	20	81	P4	3000	
2E31	1.1 **DV**-4120-0	41	73	P4	500	OK OVER 300 ON 3000 SCALE.
2E32	1.1 **DV**-4120-0	41	73	P4	500	OK OVER 300 ON 3000 SCALE
2E35	1.1 **DV**-4120-0	40	73	P4	......	OK OVER 200 ON 3000 SCALE
2E36	1.1 **DV**-4120-0	40	73	P4	......	OK OVER 200 ON 3000 SCALE
2E41	1.1 **EW**-5120-0	45	73	P4	375	AMPL. SECT. OK OVER 250 ON 3000 SCALE.
2E41	1.1 **EW**-0300-0	0	0	P1*	......	DIODE SECT. OK OVER 300 ON 3000 SCALE
2E42	1.1 **EW**-5120-0	45	73	P4	375	AMPL. SECT. OK OVER 250 ON 3000 SCALE
2E42	1.1 **EW**-0300-0	0	0	P1*	......	DIODE SECT. OK OVER 300 ON 3000 SCALE.
2G21	1.1 **EX**-3265-1	46	0	P5*	......	HEPT. SECT. OK OVER DIODES OK.
2G21	1.1 **EX**-3100-0	44	0	P5*	......	Triode Sect.
2G22	1.1 **EX**-3265-1	46	0	P5*	......	HEPT. SECT. OK OVER DIODES OK.
2G22	1.1 **EX**-3100-0	44	0	P5*	......	Triode Sect.
2T4	2.5 **JR**-2305-0	40	86	P4	4000	
2V2	2.5 **JR**-0005-0	0	36	P5*	......	Cap – P. Short on 3
2V3	2.5 **JR**-0000-0	0	50	P5*	......	Cap = P
2W3	2.5 **HR**-0400-0	0	30	P3*	......	
2X2A	2.5 **JR**-0000-0	0	73	P5*	......	Cap = P
2Z2	2.5 **JR**-0200-0	0	15	P3*	......	
3A2	3.0 **BS**-0000-0	0	72	P5*	......	Cap = P
3A3	3.0 **JR**-0000-0	0	54	P5*	......	Cap = P
3A4	2.5 **DX**-8210-0	33	73	P4	2000	
3A5	3.0 **DX**-5600-0	32	73	P4	2000	Triode No. 1
3A5	3.0 **DX**-1200-0	22	73	P4	2000	Triode No. 2
3A8	2.5 **JR**-0340-0	12	34	P4	750	PENT. SECT. CAP=G SHORT ON 3
3A8	2.5 **JR**-5640-0	12	0	P4	500	Triode Sect. Short on 3
3A8	2.5 **JR**-0740-0	12	0	P1*	......	Diode Sect. Short on 3
3AF4A	3.0 **JR**-2305-0	41	81	P4	3000	

5BZ7	5.0 **EV**-2103-9	18	88	P4	5000	Triode No. 2
5CG8	5.0 **EV**-9678-0	10	81	P4	3000	Pent. Sect.
5CG8	5.0 **EV**-1203-0	20	81	P4	3000	Triode Sect.
5CL8	5.0 **EV**-9678-0	12	81	P4	3000	Tetrode Sect.
5CL8	5.0 **EV**-1203-0	12	87	P4	4500	Triode Sect.
5CM6	5.0 **EV**-3917-0	21	85	P4	3700	
5CM8	5.0 **EV**-2673-0	22	75	P4	2200	Pent. Sect.
5CM8	5.0 **EV**-9108-0	16	48	P4	1000	Triode Sect.
5CZ5	5.0 **EV**-3917-0	12	88	P4	4800	
5DH8	5.0 **EV**-9673-8	20	83	P4	3300	Pent. Sect.
5DH8	5.0 **EV**-1203-0	25	67	P4	1600	Triode Sect.
5J6	5.0 **JR**-5207-0	20	81	P4	3000	Triode No. 1
5J6	5.0 **JR**-6307-0	20	81	P4	3000	Triode No. 2
5R4	5.0 **HR**-0600-0	0	24	P3*	......	Plate No. 1
5R4	5.0 **HR**-0400-0	0	18	P3*	......	Plate No. 2
5T4	5.0 **HR**-0600-0	0	55	P3*	......	Plate No. 1
5T4	5.0 **HR**-0400-0	0	49	P3*	......	Plate No. 2
5T8	5.0 **EV**-8907-6	11	56	P4	1200	Triode Sect.
5T8	5.0 **EV**-0607-1	0	50	P1*	......	Diode No. 1
5T8	5.0 **EV**-0203-7	0	50	P1*	......	Diode No. 2
5T8	5.0 **EV**-0107-8	0	50	P1*	......	Diode No. 3
5U4	5.0 **HR**-0600-0	0	35	P3*	......	Plate No. 1
5U4	5.0 **HR**-0400-0	0	30	P3*	......	Plate No. 2
5U8	5.0 **EV**-2637-0	15	76	P4	2250	Pent. Sect.
5U8	5.0 **EV**-9108-0	16	87	P4	4500	Triode Sect.
5V3	6.3 **HR**-0600-4	0	50	P3*	......	Plate No. 1
5V3	6.3 **HR**-0400-6	0	45	P3*	......	Plate No. 2
5V4	5.0 **HR**-0600-0	0	60	P3*	......	Plate No. 1
5V4	5.0 **HR**-0400-0	0	60	P3*	......	Plate No. 2
5V6	5.0 **JR**-5347-0	21	85	P4	3700	
5W4	5.0 **HR**-0600-0	0	20	P3*	......	Plate No. 1
5W4	5.0 **HR**-0400-0	0	15	P3*	......	Plate No. 2
5X3	5.0 **JR**-0300-0	0	13	P3*	......	Plate No. 1
5X3	5.0 **JR**-0200-0	0	13	P3*	......	Plate No. 2
5X4	5.0 **JX**-0500-0	0	43	P3*	......	Plate No. 1
5X4	5.0 **JX**-0300-0	0	39	P3*	......	Plate No. 2
5X8	5.0 **EV**-7986-1	10	81	P4	3000	Pent. Sect.
5X8	5.0 **EV**-2386-1	20	81	P4	3000	Triode Sect.
5Y3	5.0 **HR**-0600-0	0	22	P3*	......	Plate No. 1
5Y3	5.0 **HR**-0400-0	0	18	P3*	......	Plate No. 2
5Y4	5.0 **JX**-0500-0	0	16	P3*	......	Plate No. 1
5Y4	5.0 **JX**-0300-0	0	12	P3*	......	Plate No. 2
5Z3	5.0 **JR**-0300-0	0	49	P3*	......	Plate No. 1
5Z3	5.0 **JR**-0200-0	0	43	P3*	......	Plate No. 2
5Z4	5.0 **HR**-0600-0	0	73	P3*	......	Plate No. 1
5Z4	5.0 **HR**-0400-0	0	73	P3*	......	Plate No. 2
6A3	6.3 **JR**-3200-0	67	82	P4	3000	
6A4	6.3 **JR**-3240-0	28	73	P4	2000	
6A5	6.3 **JR**-5300-0	67	82	P4	3000	
6A6	6.3 **JR**-5604-0	12	65	P4	1500	Triode No. 1
6A6	6.3 **JR**-3204-0	12	65	P4	1500	Triode No. 2
6A7	6.3 **JR**-0236-5	22	50	P4	1000	Pent. Sect. Cap
6A7	6.3 **JR**-5436-2	30	73	P4	300	Osc. Sect. MICROMHOS ONLY OK OVER 240 ON 3000 SCAL
6A8	6.3 **JR**-0347-5	22	50	P4	1000	Pent. Sect. Cap
6A8	6.3 **JR**-5647-3	30	73	P4	300	Osc. Sect. MICROMHOS ONLY OK OVER 240 ON 3000 SCAL
6AB4	6.3 **JR**-6307-0	10	86	P4	4000	
6AB5/6N5	6.3 **JR**-5403-0	....	....	P4	......	Eye Open
6AB5/6N5	6.3 **JR**-5423-0	....	....	P4	......	Eye Closed
6AB6	6.3 **JR**-5347-0	0	65	P4	1450	
6AB7/1853	6.3 **JR**-4765-3	0	84	P4	3500	
6AB8	6.3 **EV**-9683-7	24	80	P4	2800	Pent. Sect.
6AB8	6.3 **EV**-2103-0	35	35	P4	800	Triode Sect.
6AC5	6.3 **JR**-5307-0	0	49	P4	1000	
6AC6	6.3 **JR**-5347-0	0	77	P4	2400	
6AC7/1852	6.3 **JR**-4765-3	10	87	P4	4500	
6AD4	6.3 **DW**-1805-0	27	26	P4	700	
6AD6	6.3 **JR**-4357-0	....	....	P4	.....	Eye 1 Open Eye 2 Closed
6AD6	6.3 **JR**-3457-0	....	....	P4	.....	Eye 2 Open Eye 1 Closed
6AD7	6.3 **JR**-5347-6	29	73	P4	2000	Pent. Sect.
6AD7	6.3 **JR**-2607-3	0	15	P4	600	Triode Sect.
6AE5	6.3 **JR**-5307-0	68	57	P4	1200	
6AE6	6.3 **JR**-5407-3	0	41	P4	850	Triode No. 1
6AE6	6.3 **JR**-5307-4	0	34	P4	750	Triode No. 2
6AE7	6.3 **JR**-6307-4	33	66	P4	1500	Triode No. 1
6AE7	6.3 **JR**-4305-6	33	66	P4	1500	Triode No. 2
6AF4	6.3 **JR**-2305-0	41	81	P4	3000	
6AF5	6.3 **JR**-5307-0	51	65	P4	1500	
6AF6	6.3 **JR**-4357-0	....	....	P4	.....	Eye 1 Open Eye 2 Closed
6AF6	6.3 **JR**-3457-0	....	....	P4	.....	Eye 2 Open Eye 1 Closed
6AG5	6.3 **JR**-3562-0	0	82	P4	3000	
6AG7	6.3 **JR**-4765-2	18	88	P4	5000	
6AH4	6.3 **JR**-2507-0	47	87	P4	4500	
6AH5	6.3 **JR**-6427-0	23	89	P4	5000	
6AH6	6.3 **JR**-3567-2	11	88	P4	5000	
6AH7	6.3 **JX**-5604-3	20	73	P4	2000	Triode No. 1
6AH7	6.3 **JX**-2301-6	20	73	P4	2000	Triode No. 2
6AJ4	6.3 **JX**-1502-0	25	87	P4	4500	
6AJ5	6.3 **JR**-3562-0	27	79	P4	2750	
6AJ7	6.3 **JR**-4765-3	10	87	P4	4500	
6AK4	6.3 **DW**-1805-7	34	72	P4	1900	
6AK5	6.3 **JR**-3562-0	24	67	P4	1500	
6AK6	6.3 **JR**-3567-2	23	74	P4	2100	
6AK7	6.3 **JR**-4765-2	18	88	P4	5000	
6AL5	6.3 **JR**-0703-0	0	61	P1*	......	Diode No. 1
6AL5	6.3 **JR**-0205-0	0	61	P1*	......	Diode No. 2
6AL6	6.3 **JR**-5047-0	23	89	P4	5000	Cap = P
6AL7	6.3 **JR**-6357-0	Vary	100	P4	......	Bias controls LEFT pattern
6AL7	6.3 **JR**-5347-0	Vary	100	P4	......	Bias controls BOTH patterns
6AL7	6.3 **JR**-4357-0	Vary	100	P4	......	Bias controls RIGHT pattern
6AM4	6.3 **JX**-1502-0	22	81	P4	3000	
6AM8	6.3 **EV**-2631-9	17	73	P4	2000	Pent. Sect.
6AM8	6.3 **EV**-0807-0	0	61	P1*	......	Diode Sect.
6AN4	6.3 **JR**-2305-0	22	81	P4	3000	
6AN5	6.3 **JR**-3567-0	11	92	P4	8000	
6AN6	6.3 **HT**-0506-0	0	25	P1*	......	Diode No. 1
6AN6	6.3 **HT**-0806-0	0	25	P1*	......	Diode No. 2
6AN6	6.3 **HT**-0106-0	0	25	P1*	......	Diode No. 3
6AN6	6.3 **HT**-0206-0	0	25	P1*	......	Diode No. 4

TABLE OF CONTENTS

INTRODUCTION 5

SECTION 1

Cross Reference of American Receiving Tubes 7

SECTION 2

Cross Reference of Subminiature Tubes 70

SECTION 3

Industrial Substitutes For Receiving Tubes 82

SECTION 4

Foreign Substitutes For American Types 87

SECTION 5

American Substitutes For Foreign Types 97

SECTION 6

Picture-Tube Substitutes 106

NOTE: A Star * after P1, P2, P3, and P5 indicates that reading is made on English Scale only.

NOTE: A crosshatch # in the BIAS column indicates Bias should be set at 100 and proper button pressed while Bias Dial is rotated until tube strikes.

COPYRIGHT 1957
THE HICKOK ELECTRICAL INSTRUMENT COMPANY—CLEVELAND, OHIO

Model 532-533-533DM-534 534A-534B-600 Tube Tester

Code No. 3200-44

10-1-57

I M P O R T A N T

RETAIN THIS DATA SHEET

This is a condensed reprint of the roll chart dated October 1, 1957, and contains all the older type tubes.

In order to save room on the new chart for new tube data, it was necessary to delete data on older tubes. This older tube data is included here for your use when needed.

00A	5.0	JR-3200-0	33	28	P4	666	
01A	5.0	JR-3200-0	48	32	P4	725	
0A4G	OFF	KS-0581-0	100	85	P5*	......	
0Y4	BLST	JX-3502-0	0	40	P2*	......	Short on 1-2
0Z4	....	JR-0507-0	0	75	P2*	......	Hold button down for 5 seconds. Plate No. 1
0Z4	....	JR-0307-0	0	75	P2*	......	Hold button down for 5 seconds. Plate No. 2
1A3	1.5	HT-0201-0	0	0	P1*	......	
1A4	2.0	JR-0230-0	29	33	P4	750	Cap−G
1A5	1.5	JR-5340-0	43	39	P4	800	
1A6	2.0	JR-0250-4	35	35	P4	750	Pent. Sect. Cap−G
1A6	2.0	JR-4350-2	35	73	P4	150	MICROMHOS ONLY OK OVER 120 ON 3000 SCALE
1A7G	1.5	JR-5340-0	30	73	P4	......	PENT. SECT. CAP−G OK OVER 200
1A7G	1.5	JR-5643-0	46	73	P4	......	OSC. SECT. OK OVER 300
1AB5	1.1	JR-6230-0	0	61	P4	1400	
1AC5	1.1	EV-2780-0	49	0	P4	500	
1AD4	1.1	DV-4120-0	28	62	P4	1400	
1AD5	1.1	EV-2780-0	28	16	P4	600	
1AE4	1.1	DX-6210-0	22	47	P4	950	
1AF4	1.5	DX-6210-0	21	27	P4	700	
1AF5	1.5	DX-6580-0	16	15	P4	600	Pent. Sect.
1AF5	1.5	DX-0100-0	0	0	P1*	......	DIODE SECT. OK OVER 500 ON 3000 SCALE
1AG4	1.1	DV-4120-0	54	20	P4	650	
1AG5	1.1	EW-5120-3	40	0	P5*	......	PENT. SECT. OK ABOVE 500 ON 3000 SCALE
1AG5	1.1	EW-0300-0	0	0	P1*	......	DIODE SECT. OK ABOVE 500 ON 3000 SCALE
1AH4	1.1	FT-4120-0	33	0	P5*	......	OK OVER DIODES OK.
1AJ5	1.1	EW-5120-3	37	73	P4	425	PENT. SECT. OK OVER 275
1AJ5	1.1	EW-0300-0	0	0	P1*	......	Diode Sect.
1AK4	1.1	FT-4120-0	33	0	P5*	......	OK ABOVE DIODES OK
1AK5	1.1	EW-5120-3	40	0	P5*	......	PENT. SECT. OK ABOVE 500 ON 3000 SCALE
1AK5	1.1	EW-0300-0	0	0	P1*	......	DIODE SECT. OK ABOVE 500 ON 3000 SCALE
1AX2	1.5	BS-0000-0	0	15	P5*	......	Cap−P
1B3/8016	1.1	JR-0000-0	0	60	P5*	......	CAP−P. OK ABOVE DIODES OK.
1B4	2.0	JR-0230-0	35	22	P4	640	Cap−G
1B5	2.0	JR-5200-0	28	73	P4	475	TRIODE SECT. MICROMHOS ONLY. OK OVER 380 ON 3000 SCALE.
1B5	2.0	JR-5400-0	28	0	P1*	......	Diode No. 1
1B5	2.0	JR-5300-0	28	0	P1*	......	Diode No. 2
1B7	1.5	JR-0340-5	24	39	P4	800	Pent. Sect. Cap−G
1B7	1.5	JR-5640-3	46	73	P4	300	MICROMHOS ONLY OK OVER 240 ON 3000 SCALE
1C3	1.5	DX-8200-0	37	33	P4	760	
1C5	1.5	JR-5340-0	44	67	P4	1550	
1C6	2.0	JR-0253-4	29	24	P4	650	Ampl. Sect. Cap−G
1C6	2.0	JR-4352-0	50	73	P4	300	MICROMHOS ONLY OK OVER 240 ON 3000 SCALE
1C7	2.0	JR-0346-5	29	24	P4	650	Pent. Sect. Cap−G
1C7	2.0	JR-5643-0	50	73	P4	300	MICROMHOS ONLY OK OVER 240 ON 3000 SCALE
1C21	BLST	JP-8501-0	0	83	P5*	......	
1D5	2.0	JR-0340-0	29	33	P4	750	Cap−G
1D7	2.0	JR-0346-5	35	35	P4	750	Pent. Sect. Cap−G
1D7	2.0	JR-5643-0	35	73	P4	150	MICROMHOS ONLY OK OVER 120 ON 3000 SCALE
1D8	1.5	JR-5346-0	50	43	P4	925	Pentode
1D8	1.5	JR-5643-0	11	13	P4	575	Triode, Cap−G
1D8	1.5	JR-5743-0	0	0	P1*	......	Diode Section
1DN5	1.5	DX-6210-0	32	15	P4	600	Pent. Sect.
1DN5	1.5	HT-0800-0	0	0	P1*	......	DIODE SECT. OK ABOVE 500 ON 3000 SCALE
1E3	1.1	EV-1800-0	24	81	P4	3000	
1E4	1.5	JR-5300-0	37	39	P4	825	
1E5	2.0	JR-0340-0	35	22	P4	640	Cap−G
1E7	2.0	JR-5673-4	21	55	P4	1150	No. 1 Plate
1E7	2.0	JR-4376-5	21	55	P4	1150	No. 2 Plate
1F4	2.0	JR-3240-0	23	62	P4	1400	
1F5	2.0	JR-5340-0	23	62	P4	1400	
1F6	2.0	JR-0230-0	26	24	P4	650	Pent. Sect. Cap−G
1F6	2.0	JR-0530-0	26	0	P1*	......	DIODE NO. 1 OK OVER 500 ON 3000 SCALE
1F6	2.0	JR-0430-0	26	0	P1*	......	DIODE NO. 2 OK OVER 500 ON 3000 SCALE
1F7	2.0	JR-0360-0	26	24	P4	650	Pent. Sect. Cap−G
1F7	2.0	JR-0463-0	26	0	P1*	......	Diode No. 1
1F7	2.0	JR-0563-0	26	0	P1*	......	Diode No. 2
1G3	1.1	JR-0000-0	0	60	P5*	......	CAP−P. OK ABOVE DIODES OK
1G4	1.5	JR-5300-0	49	40	P4	825	
1G5	2.0	JR-5340-0	37	66	P4	1500	
1G6	1.5	JR-5600-0	16	27	P4	675	Plate No. 1
1G6	1.5	JR-4300-0	16	27	P4	675	Plate No. 2
1H4	2.0	JR-5300-0	40	44	P4	900	
1H5	1.5	JR-0300-0	16	73	P4	275	Triode Sect. Cap−G MICROMHOS ONLY OK OVER 220 ON 3000 SCALE
1H5	1.5	JR-0500-0	16	0	P1*	......	Diode Sect.
1H6	2.0	JR-6300-0	28	73	P4	475	Triode Section MICROMHOS ONLY OK OVER 380 ON 3000 SCALE
1H6	2.0	JR-6500-0	28	0	P1*	......	Diode No. 1
1H6	2.0	JR-6400-0	28	0	P1*	......	Diode No. 2
1J3	1.1	JR-0000-0	0	0	P5*	......	CAP−P. OK ABOVE 500 ON 3000 SCALE
1J5	2.0	JR-5340-0	45	45	P4	950	
1J6	2.0	JR-5600-0	15	51	P4	1000	Triode No. 1
1J6	2.0	JR-4300-0	15	51	P4	1000	Triode No. 2
1L4	1.5	HT-6210-0	19	52	P4	1025	
1L6	1.5	DX-6251-8	18	39	P4	825	Pent. Sect.
1L6	1.5	DX-8152-6	40	73	P4	300	MICROMHOS ONLY OK OVER 200. OSC. SECT.
1LA4	1.5	JR-6230-0	43	39	P4	800	
1LA6	1.5	JR-6253-4	24	39	P4	800	Pent. Sect.
1LA6	1.5	JR-4352-6	46	73	P4	300	Osc. Sect. MICROMHOS ONLY OK OVER 240 ON 3000 SCALE
1LB4	1.5	JR-6230-0	51	44	P4	925	
1LB6	1.5	JR-6243-7	0	0	P4	400	Heptode Sect. ENG. ONLY OK OVER 300 ON 3000 SCALE
1LB6	1.5	JR-6357-4	20	55	P4	1500	Osc. Sect.
1LC5	1.5	JR-6234-0	29	37	P4	775	
1LC6	1.5	JR-6253-4	30	25	P4	700	Pent. Sect.
1LC6	1.5	JR-4352-6	30	73	P4	300	OSC. SECT. MICROMHOS ONLY OK OVER 240 ON 3000 SCALE
1LD5	1.5	JR-6230-0	28	17	P4	600	Pent. Sect.
1LD5	1.5	JR-6430-0	28	0	P1*	......	Diode Sect.
1LE3	1.5	JR-6205-0	0	61	P4	1300	
1LF3	1.5	JR-6205-0	20	57	P4	1200	
1LG5	1.5	JR-6234-0	25	50	P4	1050	
1LH4	1.5	JR-6200-0	16	73	P4	275	Triode Sect. MICROMHOS ONLY OK OVER 220 ON 3000 SCALE
1LH4	1.5	JR-6400-0	16	0	P1*	......	Diode Sect.
1LN5	1.5	JR-6234-0	11	34	P4	750	
1N5	1.5	JR-0340-0	11	34	P4	750	Cap−G
1N6	1.5	JR-5340-0	43	38	P4	800	Pent. Sect.
1N6	1.5	JR-0600-0	43	0	P1*	......	Diode Sect.
1P5	1.5	JR-0340-0	11	38	P4	800	Cap−G
1Q5	1.5	JR-5340-0	37	74	P4	2100	
1Q6	1.1	EV-2780-0	36	73	P4	......	PENT. SECT. OK OVER 250 ON 3000 SCALE.
1Q6	1.1	EV-0600-0	0	0	P1*	......	DIODE SECT. OK OVER 300 ON 3000 SCALE.
1R4	1.5	JR-0407-0	0	0	P1*	......	Diode
1R5	1.5	DX-8106-2	60	42	P4	900	
1S4	1.5	DX-1280-0	43	65	P4	1500	
1S5	1.5	DX-6580-0	34	11	P4	525	Pent. Sect.
1S5	1.5	DX-0180-0	34	0	P1*	......	Diode Sect.
1S6	1.1	EV-3180-0	35	73	P4	......	PENT. SECT. OK OVER 270 ON 3000 SCALE
1S6	1.1	EV-0600-0	0	0	P1*	......	DIODE SECT. OK OVER 300 ON 3000 SCALE
1SA6	1.5	JR-4763-0	23	48	P4	950	
1SB6	1.5	JR-7340-0	27	24	P4	650	Pent. Sect.
1SB6	1.5	JR-7500-0	27	0	P1*	......	Diode Sect.
1T4	1.5	DX-6210-0	34	34	P4	750	
1T5	1.5	JR-5340-0	45	56	P4	1150	
1T6	1.1	EV-3186-0	23	73	P4	......	PENT. SECT. OK OVER 250 ON 3000 SCALE.
1T6	1.1	EV-0600-0	0	0	P1*	......	DIODE SECT. OK OVER 300 ON 3000 SCALE.
1U4	1.5	DX-6210-0	14	43	P4	900	
1U5	1.5	DX-6210-0	34	11	P4	525	Pent. Sect.
1U5	1.5	DX-6810-0	34	0	P1*	......	Diode Sect.
1U6	1.5	DX-6251-8	25	48	P4	1000	Ampl. Sect.
1U6	1.5	DX-8156-2	5	0	P4	500	Osc. Sect.
1V	6.3	JR-0203-0	0	49	P3*	----	
1V2	0.6	EV-0900-0	0	12	P5*	......	
See note at end of chart.							
1V5	1.1	EV-2780-0	44	27	P4	700	
1V6	1.1	EX-3120-6	29	0	P5*	......	PENT. SECT. OK OVER DIODES OK.
1V6	1.1	EX-5600-1	50	0	P5*	......	TRIODE SECT. OK OVER DIODES OK.
1W4	1.5	DX-6210-0	49	45	P4	925	
1W5	1.1	EV-2780-0	33	73	P4	......	OK OVER 300 ON 3000 SCALE.
1X2	1.1	BS-0000-0	0	60	P5*	......	CAP−P OK ABOVE DIODES OK.
1Z2	1.5	DS-0000-0	0	70	P5*	......	Cap−P
2A3	2.5	JR-3200-0	67	82	P4	3000	
2A4	2.5	JR-5300-0	#	73	P3*	......	Strikes at about 61
2A5	2.5	JR-4235-0	29	73	P4	2000	
2A6	2.5	JR-0205-0	11	34	P4	750	Triode Sect. Cap−G
2A6	2.5	JR-0405-0	11	0	P1*	......	Diode No. 1
2A6	2.5	JR-0305-0	11	0	P1*	......	Diode No. 2
2A7	2.5	JR-0236-5	22	50	P4	1000	Pent. Sect. Cap−G
2A7	2.5	JR-5436-0	30	73	P4	400	Osc. Sect. MICROMHOS ONLY OK OVER 320 ON 3000 SCALE
2AF4	2.5	JR-2305-0	41	81	P4	3000	
2B3	1.5	JR-0000-0	0	60	P5*	......	CAP=P OK ABOVE DIODES OK. SHORT ON 3
2B4	2.5	JR-3204-0	#	91	P5*	......	Strikes at about 72
2B6	2.5	JR-4236-0	15	60	P4	1500	
2B7	2.5	JR-0236-0	30	50	P4	1000	Pent. Sect. Cap−G
2B7	2.5	JR-0536-0	30	0	P1*	......	Diode No. 1
2B7	2.5	JR-0436-0	30	0	P1*	......	Diode No. 2
2B22	6.3	JR-0007-0	0	62	P3*	......	Top Washer−P
2B23	6.3	JR-0307-0	0	30	P2*	......	
2BN4	2.0	JR-2503-0	18	86	P4	4000	
2C4	2.5	HT-1508-0	#	93	P5*	......	Strikes at about 73
2C21	6.3	JR-4506-0	38	62	P4	1375	Triode No. 1
2C21	6.3	JR-0302-0	38	62	P4	1375	Triode No. 2 Cap−G
2C22	6.3	JR-0007-0	13	82	P4	3000	Upper Cap−G Lower Cap−P
2C26	6.3	JR-0007-0	18	66	P4	1500	Upper Cap−P Lower Cap−G
2C40	6.3	JR-0007-0	17	81	P4	2800	Cap−P. Ring−G.
2C43	6.3	JR-0007-0	17	81	P4	3000	Cap=P. Ring=G.
2C45	7.5	JR-3200-0	37	76	P4	2200	
2C50	12.6	JX-2103-0	41	69	P4	1800	Triode No. 1
2C50	12.6	JX-4506-0	41	69	P4	1800	Triode No. 2
2C51	6.3	KR-7608-2	13	88	P4	5300	Triode No. 1
2C51	6.3	KR-3402-8	13	88	P4	5300	Triode No. 2
2C52	12.6	JX-4506-1	15	48	P4	1000	Triode No. 1
2C52	12.6	JX-2103-5	15	48	P4	1000	Triode No. 2
2C53	6.3	JR-5007-0	0	73	P4	400	MICROMHOS ONLY. OK OVER 320 ON 3000 SCALE. CAP−P
2CY5	2.5	JR-3562-0	23	81	P4	3000	
2D21	6.3	JR-3602-5	#	93	P5*	......	Strikes at about 30
2E5	2.5	JR-5403-0	----	----	P4	......	Eye Open
2E5	2.5	JR-5423-0	----	----	P4	......	Eye Closed
2E22	6.3	JR-3024-0	0	87	P4	4000	Cap−P
2E24	6.3	JR-5030-0	35	82	P4	3200	Short on 3, Cap−P
2E25	6.3	JR-5040-7	0	82	P4	3000	Cap−P
2E26	6.3	JR-5032-7	37	84	P4	3500	Cap−P
2E30	6.3	JR-3560-2	20	81	P4	3000	
2E31	1.1	DV-4120-0	41	73	P4	500	OK OVER 300 ON 3000 SCALE.
2E32	1.1	DV-4120-0	41	73	P4	500	OK OVER 300 ON 3000 SCALE
2E35	1.1	DV-4120-0	40	73	P4	......	OK OVER 200 ON 3000 SCALE
2E36	1.1	DV-4120-0	40	73	P4	......	OK OVER 200 ON 3000 SCALE
2E41	1.1	EW-5120-0	45	73	P4	375	AMPL. SECT. OK OVER 200 ON 3000 SCALE.
2E41	1.1	EW-0300-0	0	0	P1*	......	DIODE SECT. OK OVER 300 ON 3000 SCALE
2E42	1.1	EW-5120-0	45	73	P4	375	AMPL. SECT. OK OVER 200 ON 3000 SCALE
2E42	1.1	EW-0300-0	0	0	P1*	......	DIODE SECT. OK OVER 300 ON 3000 SCALE.
2G21	1.1	EX-3265-1	46	0	P5*	......	HEPT. SECT. OK OVER DIODES OK.
2G21	1.1	EX-3100-0	44	0	P5*	......	Triode Sect.
2G22	1.1	EX-3265-1	46	0	P5*	......	HEPT. SECT. OK OVER DIODES OK.
2G22	1.1	EX-3100-0	44	0	P5*	......	Triode Sect.
2T4	2.5	JR-2305-0	40	86	P4	4000	
2V2	2.5	JR-0005-0	0	36	P5*	......	Cap−P. Short on 3
2V3	2.5	JR-0000-0	0	50	P5*	......	Cap−P
2W3	2.5	HR-0400-0	0	30	P3*	......	
2X2A	2.5	JR-0000-0	0	73	P5*	......	Cap−P
2Z2	2.5	JR-0200-0	0	15	P3*	......	
3A2	3.0	BS-0000-0	0	72	P5*	......	Cap−P
3A3	3.0	JR-0000-0	0	54	P5*	......	Cap=P
3A4	2.5	DX-8210-0	33	73	P4	2000	
3A5	3.0	DX-5600-0	32	73	P4	2000	Triode No. 1
3A5	3.0	DX-1200-0	22	73	P4	2000	Triode No. 2
3A8	2.5	JR-0340-0	12	34	P4	750	PENT. SECT. CAP=G SHORT ON 3
3A8	2.5	JR-5640-0	12	0	P4	500	Triode Sect. Short on 3
3A8	2.5	JR-0740-0	12	0	P1*	......	Diode Sect. Short on 3
3AF4A	3.0	JR-2305-0	41	81	P4	3000	
3AL5	3.0	JR-0703-6	0	61	P1*	......	Diode No. 1
3AL5	3.0	JR-0205-6	0	61	P1*	......	Diode No. 2
3AU6	3.0	JR-3567-2	16	76	P4	2300	
3AV6	3.0	JR-3702-5	12	58	P4	1250	Triode Sect.
3AV6	3.0	JR-3602-5	0	0	P1*	......	Diode No. 1
3AV6	3.0	JR-3502-7	0	0	P1*	......	Diode No. 2
3B2	3.0	JR-0000-0	0	40	P5*	......	Cap−P. Short on 3
3B4	2.5	JV-1730-0	55	68	P4	1700	Short on 3
3B5	2.5	JR-5340-0	60	66	P4	1500	
3B7/1291	2.5	JR-6700-0	12	61	P4	1500	Triode No. 1
3B7/1291	2.5	JR-3200-0	25	61	P4	1500	Triode No. 2
3B24W	3.0	JR-0000-0	0	83	P5*	......	1st HALF OF FIL. CAP−P SHORT ON 3
3B24W	3.0	CR-0000-0	0	83	P5*	......	2nd Half of Fil. Cap−P
3B29	4.3	JR-0000-0	0	87	P5*	......	Cap−P
3BA6	3.0	JR-3567-2	9	83	P4	3300	
3BC5	3.0	JR-3562-0	0	84	P4	3200	
3BE6	3.0	JR-7562-3	11	63	P4	1425	Ampl. Sect.
3BE6	3.0	JR-3562-7	0	67	P4	1600	Osc. Sect.
3BN4	3.0	JR-2503-0	18	86	P4	4000	
3BN6	3.0	JR-2753-6	0	28	P4	700	Limiter Grid
3BN6	3.0	JR-6753-2	0	43	P4	900	Quadrature Grid
3BU8	3.0	EV-7821-9	0	59	P4	1300	Pent. No. 1
3BU8	3.0	EV-7321-6	0	59	P4	1300	Pent. No. 2
3BY6	3.0	JR-3562-7	21	56	P4	1200	
3BZ6	3.0	JR-3562-7	20	78	P4	2500	
3C2	3.0	JR-0000-0	0	75	P5*	......	CAP−P. OK ABOVE DIODES OK
3C4	2.5	DX-6210-0	44	53	P4	1100	
3C6/XXB	2.5	BY-5600-0	10	55	P4	1100	Triode No. 1
3C6/XXB	2.5	JR-4300-0	10	55	P4	1100	Triode No. 2
3CB6	3.0	JR-3562-7	22	75	P4	2200	
3CE5	3.0	JR-3562-0	22	75	P4	2200	
3CF6	3.0	JR-3562-7	22	75	P4	2200	
3CS6	3.0	JR-7562-3	Use this setting for short check only				
3CS6	3.0	JR-3602-7	43	35	P4	800	
3CY5	3.0	JR-3562-0	23	81	P4	3000	
3D6	2.5	JR-6230-0	37	74	P4	2100	
3DK6	3.0	JR-3562-7	15	84	P4	3500	
3DT6	3.0	JR-3562-7	22	15	P4	600	
3E5	2.5	DX-6215-0	50	56	P4	1200	Short on 3
3E6	3.0	JR-6234-0	15	67	P4	1600	
3LE4	2.5	JR-6230-0	55	55	P4	1100	
3LF4	2.5	JR-6230-0	30	72	P4	1900	
3Q4	3.0	HT-1280-0	24	74	P4	2150	
3Q5	2.5	JR-5340-0	38	71	P4	1800	
3S4	2.5	HT-1280-0	43	61	P4	1300	
3V4	3.0	DX-6210-0	31	73	P4	2000	
4A6	3.0	JR-5600-0	16	51	P4	1000	Triode No. 1
4A6	3.0	JR-4300-0	0	51	P4	1000	Triode No. 2
4AU6	4.3	JR-3567-2	16	76	P4	2300	
4BA6	4.3	JR-3567-2	9	83	P4	3300	
4BC5	4.3	JR-3562-0	0	84	P4	3200	
4BC8	4.3	EV-7608-9	20	86	P4	4000	Triode No. 1
4BC8	4.3	EV-2103-9	20	86	P4	4000	Triode No. 2
4BE6	4.3	JR-7562-3	11	63	P4	1425	Ampl. Sect.
4BE6	4.3	JR-3562-7	0	67	P4	1600	Osc. Sect.
4BN6	4.3	JR-2753-6	0	28	P4	700	Limiter Grid
4BN6	4.3	JR-6753-2	0	43	P4	900	Quadrature Grid
4BQ7A	4.3	EV-7608-9	13	88	P4	5300	Triode No. 1
4BQ7A	4.3	EV-2103-9	13	88	P4	5300	Triode No. 2
4BS8	4.3	EV-7608-9	20	86	P4	4000	Triode No. 1
4BS8	4.3	EV-2103-9	20	86	P4	4000	Triode No. 2
4BU8	4.3	EV-7821-9	0	59	P4	1300	Pent. No. 1
4BU8	4.3	EV-7321-6	0	59	P4	1300	Pent. No. 2
4BX8	4.3	EV-7608-9	33	78	P4	2500	Triode No. 1
4BX8	4.3	EV-2103-9	33	78	P4	2500	Triode No. 2
4BZ7	4.3	EV-7608-9	18	88	P4	5000	Triode No. 1
4BZ7	4.3	EV-2103-9	18	88	P4	5000	Triode No. 2
4BZ8	4.3	EV-7608-9	20	86	P4	4000	Triode No. 1
4BZ8	4.3	EV-2103-9	20	86	P4	4000	Triode No. 2
4CB6	4.3	JR-3562-7	22	76	P4	2200	
4CE5	4.3	JR-3562-0	22	75	P4	2200	
4CY5	4.3	JR-3562-0	23	81	P4	3000	
4DT6	4.3	JR-3562-7	22	15	P4	600	
5A6	5.0	EV-7160-3	46	82	P4	3000	
5AM8	5.0	EV-2631-9	17	73	P4	2000	Pent. Sect.
5AM8	5.0	EV-0807-0	0	61	P1*	......	Diode Sect.
5AN8	5.0	EV-8679-1	9	86	P4	4000	Pent. Sect.
5AN8	5.0	EV-2173-6	21	83	P4	3300	Triode Sect.
5AQ5	5.0	JR-3562-0	21	85	P4	3700	
5AS4	5.0	HR-0600-0	0	35	P3*	......	Plate No. 1
5AS4	5.0	HR-0400-0	0	30	P3*	......	Plate No. 2
5AS8	5.0	EV-2913-7	22	75	P4	2200	Pent. Sect.
5AS8	5.0	EV-0608-7	0	55	P1*	......	Diode Sect.
5AT8	5.0	EV-9673-8	10	81	P4	3000	Pent. Sect.
5AT8	5.0	EV-1203-8	20	81	P4	3000	Triode Sect.
5AU4	7.5	HR-0600-0	0	51	P3*	......	Plate No. 1
5AU4	7.5	HR-0400-0	0	46	P3*	......	Plate No. 2
5AV8	5.0	EV-6987-0	9	86	P4	4000	Pent. Sect.
5AV8	5.0	EV-2301-0	21	83	P4	3300	Triode Sect.
5AW4	6.3	HR-0600-4	0	45	P3*	......	Plate No. 1
5AW4	6.3	HR-0400-6	0	40	P3*	......	Plate No. 2
5AX4	5.0	HR-0600-0	0	35	P3*	......	Plate No. 1
5AX4	5.0	HR-0400-0	0	30	P3*	......	Plate No. 2
5AZ4	5.0	JS-0400-6	0	18	P3*	......	Plate No. 1
5AZ4	5.0	JS-0600-4	0	22	P3*	......	Plate No. 2
5B8	5.0	EV-6987-1	9	86	P4	4000	Pent. Section Short on 2-3
5B8	5.0	EV-2301-9	23	83	P4	3300	Triode Sect.
5BE8	5.0	EV-9678-3	15	76	P4	2250	PENT. SECT. SHORT ON 2-3
5BE8	5.0	EV-1203-0	16	87	P4	4500	Triode Sect.
5BK7A	5.0	EV-7608-9	22	85	P4	4000	Triode No. 1
5BK7A	5.0	EV-2103-9	22	85	P4	4000	Triode No. 2
5BQ7A	5.0	EV-7608-9	13	88	P4	5300	Triode No. 1
5BQ7A	5.0	EV-2103-9	13	88	P4	5300	Triode No. 2
5BR8	5.0	EV-9678-0	15	76	P4	2250	Pent. Sect.
5BR8	5.0	EV-1203-0	16	87	P4	4500	Triode Sect.
5BS8	5.0	EV-7608-9	20	86	P4	4000	Triode No. 1
5BS8	5.0	EV-2103-9	20	86	P4	4000	Triode No. 2
5BT8	5.0	EV-8679-0	22	75	P4	2200	Pent. Sect.
5BT8	5.0	EV-0103-0	0	30	P1*	......	Diode No. 1
5BT8	5.0	EV-0203-0	0	30	P1*	......	Diode No. 2
5BZ7	5.0	EV-7608-9	18	88	P4	5000	Triode No. 1
5BZ7	5.0	EV-2103-9	18	88	P4	5000	Triode No. 2
5CG8	5.0	EV-9678-0	10	81	P4	3000	Pent. Sect.
5CG8	5.0	EV-1203-0	20	81	P4	3000	Triode Sect.
5CL8	5.0	EV-9678-0	12	81	P4	3000	Tetrode Sect.
5CL8	5.0	EV-1203-0	12	87	P4	4500	Triode Sect.
5CM6	5.0	EV-3917-0	21	85	P4	3700	
5CM8	5.0	EV-2673-0	22	75	P4	2200	Pent. Sect.
5CM8	5.0	EV-9108-0	16	48	P4	1000	Triode Sect.
5CZ5	5.0	EV-3917-0	12	88	P4	4800	
5DH8	5.0	EV-9673-8	20	83	P4	3300	Pent. Sect.
5DH8	5.0	EV-1203-0	25	67	P4	1600	Triode Sect.
5J6	5.0	JR-5207-0	20	81	P4	3000	Triode No. 1
5J6	5.0	JR-6307-0	20	81	P4	3000	Triode No. 2
5R4	5.0	HR-0600-0	0	24	P3*	......	Plate No. 1
5R4	5.0	HR-0400-0	0	18	P3*	......	Plate No. 2
5T4	5.0	HR-0600-0	0	55	P3*	......	Plate No. 1
5T4	5.0	HR-0400-0	0	49	P3*	......	Plate No. 2
5T8	5.0	EV-8907-6	11	56	P4	1200	Triode Sect.
5T8	5.0	EV-0607-1	0	50	P1*	......	Diode No. 1
5T8	5.0	EV-0203-7	0	50	P1*	......	Diode No. 2
5T8	5.0	EV-0107-8	0	50	P1*	......	Diode No. 3
5U4	5.0	HR-0600-0	0	35	P3*	......	Plate No. 1
5U4	5.0	HR-0400-0	0	30	P3*	......	Plate No. 2
5U8	5.0	EV-2637-0	15	76	P4	2250	Pent. Sect.
5U8	5.0	EV-9108-0	16	87	P4	4500	Triode Sect.
5V3	6.3	HR-0600-4	0	50	P3*	......	Plate No. 1
5V3	6.3	HR-0400-6	0	45	P3*	......	Plate No. 2
5V4	5.0	HR-0600-0	0	60	P3*	......	Plate No. 1
5V4	5.0	HR-0400-0	0	60	P3*	......	Plate No. 2
5V6	5.0	JR-5347-0	21	85	P4	3700	
5W4	5.0	HR-0600-0	0	20	P3*	......	Plate No. 1
5W4	5.0	HR-0400-0	0	15	P3*	......	Plate No. 2
5X3	5.0	JR-0300-0	0	13	P3*	......	Plate No. 1
5X3	5.0	JR-0200-0	0	13	P3*	......	Plate No. 2
5X4	5.0	JX-0500-0	0	43	P3*	......	Plate No. 1
5X4	5.0	JX-0300-0	0	39	P3*	......	Plate No. 2
5X8	5.0	EV-7986-1	10	81	P4	3000	Pent. Sect.
5X8	5.0	EV-2386-1	20	81	P4	3000	Triode Sect.
5Y3	5.0	HR-0600-0	0	22	P3*	......	Plate No. 1
5Y3	5.0	HR-0400-0	0	18	P3*	......	Plate No. 2
5Y4	5.0	JX-0500-0	0	16	P3*	......	Plate No. 1
5Y4	5.0	JX-0300-0	0	12	P3*	......	Plate No. 2
5Z3	5.0	JR-0300-0	0	49	P3*	......	Plate No. 1
5Z3	5.0	JR-0200-0	0	43	P3*	......	Plate No. 2
5Z4	5.0	HR-0600-0	0	73	P3*	......	Plate No. 1
5Z4	5.0	HR-0400-0	0	73	P3*	......	Plate No. 2
6A3	6.3	JR-3200-0	67	82	P4	3000	
6A4	6.3	JR-3240-0	28	73	P4	2000	
6A5	6.3	JR-5300-0	67	82	P4	3000	
6A6	6.3	JR-5604-0	12	65	P4	1500	Triode No. 1
6A6	6.3	JR-3204-0	12	65	P4	1500	Triode No. 2
6A7	6.3	JR-0236-5	22	50	P4	1000	Pent. Sect. Cap−G
6A7	6.3	JR-5436-2	30	73	P4	300	Osc. Sect. MICROMHOS ONLY OK OVER 240 ON 3000 SCALE
6A8	6.3	JR-0347-5	22	50	P4	1000	Pent. Sect. Cap−G
6A8	6.3	JR-5647-3	30	73	P4	300	Osc. Sect. MICROMHOS ONLY OK OVER 240 ON 3000 SCALE
6AB4	6.3	JR-6307-0	10	86	P4	4000	
6AB5/6N5	6.3	JR-5403-0	----	----	P4	......	Eye Open
6AB5/6N5	6.3	JR-5423-0	----	----	P4	......	Eye Closed
6AB6	6.3	JR-5347-0	0	65	P4	1450	
6AB7/1853	6.3	JR-4765-3	0	84	P4	3500	
6AB8	6.3	EV-9683-7	24	80	P4	2800	Pent. Sect.
6AB8	6.3	EV-2103-0	35	35	P4	800	Triode Sect.
6AC5	6.3	JR-5307-0	0	49	P4	1000	
6AC6	6.3	JR-5347-0	0	77	P4	2400	
6AC7/1852	6.3	JR-4765-3	10	87	P4	4500	
6AD4	6.3	DW-1805-0	27	26	P4	700	
6AD6	6.3	JR-4357-0	----	----	P4	----	Eye 1 Open Eye 2 Closed
6AD6	6.3	JR-3457-0	----	----	P4	----	Eye 2 Open Eye 1 Closed
6AD7	6.3	JR-5347-6	29	73	P4	2000	Pent. Sect.
6AD7	6.3	JR-2607-3	0	15	P4	600	Triode Sect.
6AE5	6.3	JR-5307-0	68	57	P4	1200	
6AE6	6.3	JR-5407-3	0	41	P4	850	Triode No. 1
6AE6	6.3	JR-5307-4	0	34	P4	750	Triode No. 2
6AE7	6.3	JR-6307-4	33	66	P4	1500	Triode No. 1
6AE7	6.3	JR-4305-6	33	66	P4	1500	Triode No. 2
6AF4	6.3	JR-2305-0	41	81	P4	3000	
6AF5	6.3	JR-5307-0	51	65	P4	1500	
6AF6	6.3	JR-4357-0	----	----	P4	----	Eye 1 Open Eye 2 Closed
6AF6	6.3	JR-3457-0	----	----	P4	----	Eye 2 Open Eye 1 Closed
6AG5	6.3	JR-3562-0	0	82	P4	3000	
6AG7	6.3	JR-4765-2	18	88	P4	5000	
6AH4	6.3	JR-2507-0	47	87	P4	4500	
6AH5	6.3	JR-6427-0	23	89	P4	5000	
6AH6	6.3	JR-3567-2	11	88	P4	5000	
6AH7	6.3	JX-5604-3	20	73	P4	2000	Triode No. 1
6AH7	6.3	JX-2301-6	20	73	P4	2000	Triode No. 2
6AJ4	6.3	JX-1502-0	25	87	P4	4500	
6AJ5	6.3	JR-3562-0	27	79	P4	2750	
6AJ7	6.3	JR-4765-3	10	87	P4	4500	
6AK4	6.3	DW-1805-7	34	72	P4	1900	
6AK5	6.3	JR-3562-0	24	67	P4	1500	
6AK6	6.3	JR-3567-2	23	74	P4	2100	
6AK7	6.3	JR-4765-2	18	88	P4	5000	
6AL5	6.3	JR-0703-0	0	61	P1*	......	Diode No. 1
6AL5	6.3	JR-0205-0	0	61	P1*	......	Diode No. 2
6AL6	6.3	JR-5047-0	23	89	P4	5000	Cap−P
6AL7	6.3	JR-6357-0	Vary	100	P4	......	Bias controls LEFT pattern
6AL7	6.3	JR-5347-0	Vary	100	P4	......	Bias controls BOTH patterns
6AL7	6.3	JR-4357-0	Vary	100	P4	......	Bias controls RIGHT pattern
6AM4	6.3	JX-1502-0	22	81	P4	3000	
6AM8	6.3	EV-2631-9	17	73	P4	2000	Pent. Sect.
6AM8	6.3	EV-0807-0	0	61	P1*	......	Diode Sect.
6AN4	6.3	JR-2305-0	22	81	P4	3000	
6AN5	6.3	JR-3567-0	11	92	P4	8000	
6AN6	6.3	HT-0506-0	0	25	P1*	......	Diode No. 1
6AN6	6.3	HT-0806-0	0	25	P1*	......	Diode No. 2
6AN6	6.3	HT-0106-0	0	25	P1*	......	Diode No. 3
6AN6	6.3	HT-0206-0	0	25	P1*	......	Diode No. 4
6AN8	6.3	EV-8679-1	9	86	P4	4000	Pent. Sect.
6AN8	6.3	EV-2173-6	21	83	P4	3300	Triode Sect.
6AQ5	6.3	JR-3562-0	21	85	P4	3700	
6AQ6	6.3	JR-3702-0	6	55	P4	1150	Triode Sect.
6AQ6	6.3	JR-0602-0	6	0	P1*	......	Diode No. 1
6AQ6	6.3	JR-0502-0	6	0	P1*	......	Diode No. 2
6AQ7	6.3	JX-4501-6	13	50	P4	1000	Triode Section
6AQ7	6.3	JX-4201-6	0	0	P1*	......	Diode No. 1
6AQ7	6.3	JX-4301-6	0	0	P1*	......	Diode No. 2
6AR5	6.3	JR-3562-0	34	67	P4	1600	
6AR6	6.3	GX-8352-0	34	89	P4	5400	
6AR8	6.3	EV-6937-1	25	62	P4	1400	Plate No. 1
6AR8	6.3	EV-6837-1	25	62	P4	1400	Plate No. 2
6AS5	6.3	JR-2763-0	26	89	P4	5600	
6AS6	6.3	JR-3562-7	14	70	P4	1750	
6AS7	6.3	JX-4506-1	100	82	P4	2800	Triode No. 1
6AS7	6.3	JX-2103-5	100	82	P4	2800	Triode No. 2
6AS8	6.3	EV-2913-7	22	75	P4	2200	Pent. Sect.
6AS8	6.3	EV-0608-7	0	55	P1*	......	Diode Sect.
6AT6	6.3	JR-3702-0	11	56	P4	1200	Triode Sect.
6AT6	6.3	JR-3602-0	11	0	P1*	......	Diode No. 1
6AT6	6.3	JR-3502-0	11	0	P1*	......	Diode No. 2
6AT8	6.3	EV-9673-8	10	81	P4	3000	Pent. Sect.
6AT8	6.3	EV-1203-8	20	81	P4	3000	Triode Sect.
6AU4	6.3	JX-0503-0	0	72	P3*	......	
6AU5	6.3	JR-2573-0	41	90	P4	5200	
6AU6	6.3	JR-3567-2	16	76	P4	2300	
6AU7	6.3	EV-7608-0	24	75	P4	2200	Triode No. 1
6AU7	6.3	EV-2103-0	24	75	P4	2200	Triode No. 2
6AU8	6.3	EV-7986-0	20	84	P4	3500	Pent. Sect.
6AU8	6.3	EV-2301-0	22	78	P4	2500	Triode Sect.
6AV5	6.3	JR-2573-0	50	86	P4	3900	
6AV6	6.3	JR-3702-5	12	58	P4	1250	Triode Section
6AV6	6.3	JR-3602-5	0	0	P1*	......	Diode No. 1
6AV6	6.3	JR-3502-7	0	0	P1*	......	Diode No. 2
6AW7	6.3	JX-1602-0	8	43	P4	900	Triode Sect.
6AW7	6.3	JX-1305-0	0	50	P1*	......	Diode No. 1
6AW7	6.3	JX-1402-0	0	50	P1*	......	Diode No. 2
6AW8	6.3	EV-7986-3	20	86	P4	4000	Pent. Sect.
6AW8	6.3	EV-2301-9	22	65	P4	1500	Triode Sect.
6AX4	6.3	JX-0503-0	0	60	P3*	......	
6AX5	6.3	JR-0507-3	0	35	P3*	......	Plate No. 1
6AX5	6.3	JR-0307-5	0	35	P3*	......	Plate No. 2
6AX6G	6.3	JR-0507-0	0	73	P3*	......	Plate No. 1
6AX6G	6.3	JR-0304-0	0	73	P3*	......	Plate No. 2
6AX7	6.3	EV-7608-0	12	58	P4	1250	Triode No. 1
6AX7	6.3	EV-2103-0	12	58	P4	1250	Triode No. 2
6AX8	6.3	EV-2637-0	15	76	P4	2250	Pent. Sect.
6AX8	6.3	EV-9108-0	16	87	P4	4500	Triode Sect.
6AZ5	6.3	DW-0807-0	0	45	P1*	......	Diode No. 1
6AZ5	6.3	DW-0102-0	0	45	P1*	......	Diode No. 2
6AZ6	6.3	DW-0204-8	0	54	P1*	......	Diode No. 1
6AZ6	6.3	DW-0705-8	0	54	P1*	......	Diode No. 2
6AZ8	6.3	EV-6123-0	9	86	P4	4000	Pent. Sect.
6AZ8	6.3	EV-9807-0	21	83	P4	3300	Triode Sect.
6B4	6.3	JR-5300-0	67	82	P4	3000	
6B5	6.3	JR-4235-0	0	63	P4	1500	
6B6	6.3	JR-0307-0	11	34	P4	750	Triode Sect. Cap−G
6B6	6.3	JR-0507-0	11	0	P1*	......	Diode No. 1
6B6	6.3	JR-0407-0	11	0	P1*	......	Diode No. 2
6B7	6.3	JR-0236-0	30	50	P4	1000	Pent. Sect. Cap−G
6B7	6.3	JR-0536-0	30	0	P1*	......	Diode No. 1
6B7	6.3	JR-0436-0	30	0	P1*	......	Diode No. 2
6B8	6.3	JR-0367-2	24	55	P4	1150	Pent. Sect. Cap−G
6B8	6.3	JR-0567-2	24	0	P1*	......	Diode No. 1
6B8	6.3	JR-0467-2	24	0	P1*	......	Diode No. 2
6BA5	6.3	DW-1578-0	16	75	P4	2150	
6BA6	6.3	JR-3567-2	9	83	P4	3300	
6BA7	6.3	EV-7913-2	17	31	P4	750	Ampl. Sect.
6BA7	6.3	EV-2913-7	25	31	P4	750	Osc. Sect.
6BA8	6.3	EV-7986-0	11	88	P4	5000	Pent. Sect.
6BA8	6.3	EV-2301-0	29	79	P4	2700	Triode Sect.
6BC4	6.3	EV-2106-0	22	86	P4	4000	
6BC5	6.3	JR-3562-0	0	84	P4	3200	
6BC7	6.3	EV-0809-0	0	60	P1*	......	Diode No. 1
6BC7	6.3	EV-0607-0	0	60	P1*	......	Diode No. 2
6BC7	6.3	EV-0201-0	0	60	P1*	......	Diode No. 3
6BC8	6.3	EV-7608-9	20	86	P4	4000	Triode No. 1
6BC8	6.3	EV-2103-9	20	86	P4	4000	Triode No. 2
6BD5	6.3	JR-2573-0	21	89	P4	5000	
6BD6	6.3	JR-3567-2	19	73	P4	2000	
6BE6	6.3	JR-7562-3	11	63	P4	1425	Ampl. Sect.
6BE6	6.3	JR-3562-7	0	67	P4	1600	Osc. Sect.
6BE7	6.3	EV-7163-9	29	48	P4	1000	
6BE8	6.3	EV-9678-3	15	76	P4	2250	PENT. SECT. SHORT ON 2-3
6BE8	6.3	EV-1203-0	16	87	P4	4500	Triode Sect.
6BF5	6.3	JR-3562-0	49	84	P4	3400	
6BF6	6.3	JR-3702-0	18	72	P4	1900	Triode Section
6BF6	6.3	JR-3602-0	18	0	P1*	......	Diode No. 1
6BF6	6.3	JR-3502-0	18	0	P1*	......	Diode No. 2
6BF7	6.3	DW-7805-0	22	78	P4	2500	Triode No. 1
6BF7	6.3	DW-2104-0	22	78	P4	2500	Triode No. 2
6BG6	6.3	JR-5073-0	20	90	P4	6000	Cap−P
6BG7	6.3	DW-7805-0	22	78	P4	2500	Triode No. 1
6BG7	6.3	DW-2104-0	22	78	P4	2500	Triode No. 2
6BH6	6.3	JR-3562-7	15	73	P4	2000	
6BH8	6.3	EV-7986-0	11	87	P4	4500	Pent. Sect.
6BH8	6.3	EV-2301-0	27	83	P4	3300	Triode Sect.
6BJ6	6.3	JR-3562-7	0	85	P4	3800	
6BJ7	6.3	EV-0809-3	0	58	P1*	......	Diode No. 1
6BJ7	6.3	EV-0607-3	0	58	P1*	......	Diode No. 2
6BJ7	6.3	EV-0201-3	0	58	P1*	......	Diode No. 3
6BJ8	6.3	EV-8709-0	24	80	P4	2800	Triode Sect.
6BJ8	6.3	EV-0603-0	0	61	P1*	......	Diode No. 1
6BJ8	6.3	EV-0102-0	0	61	P1*	......	Diode No. 2
6BK5	6.3	EV-3186-0	0	91	P4	7000	
6BK6	6.3	JR-3702-5	6	58	P4	1250	Triode Sect.
6BK6	6.3	JR-0602-5	0	49	P1*	......	Diode No. 1
6BK6	6.3	JR-0502-7	0	49	P1*	......	Diode No. 2
6BK7	6.3	EV-7608-9	22	85	P4	4000	Triode No. 1
6BK7	6.3	EV-2103-9	22	85	P4	4000	Triode No. 2
6BL4	6.3	JX-0203-0	0	73	P3*	......	
6BL7	6.3	JX-2103-0	23	88	P4	5000	Triode No. 1
6BL7	6.3	JX-4506-0	23	88	P4	5000	Triode No. 2
6BN4	6.3	JR-2503-0	18	86	P4	4000	
6BN6	6.3	JR-2753-6	0	28	P4	700	Limiter Grid
6BN6	6.3	JR-6753-2	0	43	P4	900	Quadrature Grid
6BN8	6.3	EV-8709-0	26	48	P4	1000	Triode Sect.
6BN8	6.3	EV-0603-0	0	61	P1*	......	Diode No. 1
6BN8	6.3	EV-0102-0	0	61	P1*	......	Diode No. 2
6BQ6	6.3	JR-5047-0	50	87	P4	4500	Cap=P
6BQ7	6.3	EV-7608-0	13	88	P4	5300	Triode No. 1
6BQ7	6.3	EV-2103-0	13	88	P4	5300	Triode No. 2
6BQ7A	6.3	EV-7608-9	13	88	P4	5300	Triode No. 1
6BQ7A	6.3	EV-2103-9	13	88	P4	5300	Triode No. 2
6BR8	6.3	EV-9678-0	15	76	P4	2250	Pent. Sect.
6BR8	6.3	EV-1203-0	16	87	P4	4500	Triode Sect.
6BS8	6.3	EV-7608-9	20	86	P4	4000	Triode No. 1
6BS8	6.3	EV-2103-9	20	86	P4	4000	Triode No. 2
6BT6	6.3	JR-3702-0	13	60	P4	1300	Triode Sect.
6BT6	6.3	JR-3602-0	0	0	P1*	......	Diode No. 1
6BT6	6.3	JR-3502-0	0	0	P1*	......	Diode No. 2
6BT8	6.3	EV-8679-0	22	75	P4	2200	Pent. Sect.
6BT8	6.3	EV-0103-0	0	30	P1*	......	Diode No. 1
6BT8	6.3	EV-0203-0	0	30	P1*	......	Diode No. 2
6BU6	6.3	JR-3702-0	34	65	P4	1500	Triode Sect.
6BU6	6.3	JR-3602-0	0	0	P1*	......	Diode No. 1
6BU6	6.3	JR-3502-0	0	0	P1*	......	Diode No. 2
6BU8	6.3	EV-7821-9	0	59	P4	1300	Pent. No. 1
6BU8	6.3	EV-7321-6	0	59	P4	1300	Pent. No. 2
6BV8	6.3	EV-2301-0	23	86	P4	4000	Triode Sect.
6BV8	6.3	EV-0907-0	0	61	P1*	......	Diode No. 1
6BV8	6.3	EV-0608-0	0	61	P1*	......	Diode No. 2
6BW4	6.3	EV-0709-1	0	20	P3*	......	Plate No. 1
6BW4	6.3	EV-0109-7	0	20	P3*	......	Plate No. 2
6BW8	6.3	EV-6987-0	15	76	P4	2250	Pent. Sect.
6BW8	6.3	EV-0302-0	0	50	P1*	......	Diode No. 1
6BW8	6.3	EV-0102-0	0	50	P1*	......	Diode No. 2
6BX6	6.3	EV-2781-9	13	81	P4	3000	
6BX7	6.3	JX-4506-1	35	92	P4	7600	Triode No. 1
6BX7	6.3	JX-2103-5	35	92	P4	7600	Triode No. 2
6BX8	6.3	EV-7608-9	33	78	P4	2500	Triode No. 1
6BX8	6.3	EV-2103-9	33	78	P4	2500	Triode No. 2
6BY5	6.3	JR-0402-0	0	59	P3*	......	Plate No. 1
6BY5	6.3	JR-0507-0	0	59	P3*	......	Plate No. 2
6BY6	6.3	JR-3562-7	21	56	P4	1200	
6BY8	6.3	EV-1789-2	16	76	P4	2300	Pent. Sect.
6BY8	6.3	EV-0603-0	0	61	P1*	......	Diode Sect.
6BZ6	6.3	JR-3562-7	20	78	P4	2500	
6BZ7	6.3	EV-7608-9	18	88	P4	5000	Triode No. 1
6BZ7	6.3	EV-2103-9	18	88	P4	5000	Triode No. 2
6BZ8	6.3	EV-7608-9	20	86	P4	4000	Triode No. 1
6BZ8	6.3	EV-2103-9	20	86	P4	4000	Triode No. 2
6C4	6.3	JR-6307-0	24	75	P4	2200	
6C5	6.3	JR-5307-0	21	73	P4	2000	
6C6	6.3	JR-0235-4	21	60	P4	1225	Cap−G
6C7	6.3	JR-0206-0	29	60	P4	1250	Triode Sect. Cap=G
6C7	6.3	JR-0506-0	29	0	P1*	......	Diode No. 1
6C7	6.3	JR-0406-0	29	0	P1*	......	Diode No. 2
6C8	6.3	JR-5607-0	17	51	P4	1000	Triode No. 1
6C8	6.3	JR-0304-0	17	51	P4	1000	Triode No. 2 Cap=G
6CA5	6.3	JR-2763-0	24	90	P4	6000	
6CA7	6.3	JR-5347-2	27	90	P4	6000	
6CB5	7.5	JR-4023-0	49	87	P4	4500	Cap=P
6CB6	6.3	JR-3562-7	22	76	P4	2200	
6CD6	6.3	JR-5073-0	42	90	P4	6500	Cap−P
6CE5	6.3	JR-3562-0	22	75	P4	2200	
6CF6	6.3	JR-3562-7	22	75	P4	2200	
6CG7	6.3	EV-7608-9	23	73	P4	2000	Triode No. 1
6CG7	6.3	EV-2103-9	23	73	P4	2000	Triode No. 2
6CG8	6.3	EV-9678-0	10	81	P4	3000	Pent. Sect.
6CG8	6.3	EV-1203-0	20	81	P4	3000	Triode Sect.
6CH7	6.3	EV-7608-0	18	88	P4	5000	Triode No. 1
6CH7	6.3	EV-2103-0	18	88	P4	5000	Triode No. 2
6CH8	6.3	EV-7236-0	9	86	P4	4000	Pent. Sect.
6CH8	6.3	EV-8901-0	21	83	P4	3300	Triode Sect.
6CJ6	6.3	EV-2073-1	54	87	P4	4600	Cap−P
6CK6	6.3	EV-2713-6	5	91	P4	7500	
6CL6	6.3	EV-2631-7	18	88	P4	5000	
6CL8	6.3	EV-9678-0	12	81	P4	3000	Tetrode Sect.
6CL8	6.3	EV-1203-0	12	87	P4	4500	Triode Sect.
6CM6	6.3	EV-3917-0	21	85	P4	3700	
6CM7	6.3	EV-7603-0	24	73	P4	2000	Triode No. 1
6CM7	6.3	EV-8109-0	20	87	P4	4400	Triode No. 2
6CM8	6.3	EV-2673-0	22	75	P4	2200	Pent. Sect.
6CM8	6.3	EV-9108-0	16	48	P4	1000	Triode Sect.
6CN7	6.3	EV-7806-0	11	56	P4	1200	Triode Sect.
6CN7	6.3	EV-0203-0	0	50	P1*	......	Diode No. 1
6CN7	6.3	EV-0103-0	0	50	P1*	......	Diode No. 2
6CQ8	6.3	EV-2637-0	16	80	P4	2800	Tetrode Sect.
6CQ8	6.3	EV-9108-0	23	83	P4	3400	Triode Sect.
6CR6	6.3	JR-7563-2	12	72	P4	1950	Pent. Sect.
6CR6	6.3	JR-0203-0	0	0	P1*	......	Diode Sect.
6CS6	6.3	JR-7562-3	Use this setting for short check only				
6CS6	6.3	JR-3602-7	43	35	P4	800	
6CS7	6.3	EV-7608-0	17	75	P4	2200	Triode No. 1
6CS7	6.3	EV-3109-0	24	87	P4	4500	Triode No. 2
6CU5	6.3	JR-2763-0	37	88	P4	5000	
6CU6	6.3	JR-5047-0	50	87	P4	4500	Cap=P
6CU8	6.3	EV-7236-1	9	86	P4	4000	Pent. Sect.
6CU8	6.3	EV-8901-0	21	83	P4	3300	Triode Sect.
6CX8	6.3	EV-7986-0	16	90	P4	6000	Pent. Sect.
6CX8	6.3	EV-2301-0	24	73	P4	2000	Triode Sect.
6CY5	6.3	JR-3562-0	23	81	P4	3000	
6CY7	6.3	EV-7608-0	23	0	P4	500	Triode No. 1
6CY7	6.3	EV-2109-0	63	86	P4	4000	Triode No. 2
6CZ5	6.3	EV-3917-0	12	88	P4	4800	
6D4	6.3	JR-3705-0	#	55	P3*	......	Strikes at about 75
6D5	6.3	JR-5307-0	57	73	P4	2000	
6D6	6.3	JR-0235-4	21	68	P4	1600	Cap−G
6D7	6.3	JR-0236-4	24	58	P4	1225	Cap=G
6D8	6.3	JR-0347-5	22	50	P4	1000	Pent. Sect. Cap−G
6D8	6.3	JR-5647-3	30	73	P4	300	TRIODE SECT. MICROMHOS ONLY OK OVER 240 ON 3000 SCALE CAP−G
6DA6	6.3	EV-2783-9	23	73	P4	2000	
6DB5	6.3	EV-3912-0	30	90	P4	6500	
6DB6	6.3	JR-3562-7	16	65	P4	1500	
6DC6	6.3	JR-3562-7	18	78	P4	2500	
6DE6	6.3	JR-3562-7	22	75	P4	2200	
6DE7	6.3	EV-7608-0	35	60	P4	1300	Triode No. 1
6DE7	6.3	EV-2109-0	54	88	P4	6500	Triode No. 2
6DG6	6.3	JR-5347-0	30	90	P4	6500	
6DK6	6.3	JR-3562-7	15	84	P4	3500	
6DN6	6.3	JR-5073-0	43	90	P4	6000	Cap=P
6DQ6	6.3	JR-5047-0	32	90	P4	6000	Cap=P
6DS5	6.3	JR-3562-0	16	89	P4	6000	
6DT6	6.3	JR-3562-7	22	15	P4	600	
6E5	6.3	JR-5403-0	----	----	P4	......	Eye Open
6E5	6.3	JR-5423-0	----	----	P4	......	Eye Closed
6E6	6.3	JR-5604-0	54	63	P4	1400	Triode No. 1
6E6	6.3	JR-3204-0	54	63	P4	1400	Triode No. 2
6E7	6.3	JR-0236-4	24	67	P4	1500	Cap=G
6F4	6.3	JR-2306-0	30	92	P4	6000	
6F5	6.3	JR-0407-2	12	52	P4	1000	Cap=G
6F6	6.3	JR-5347-2	29	73	P4	2000	
6F7	6.3	JR-0236-5	28	55	P4	1100	Pent. Sect. Cap−G
6F7	6.3	JR-5436-2	28	0	P4	500	Triode Sect.
6F8	6.3	JR-5607-0	23	73	P4	2000	Triode No. 1
6F8	6.3	JR-0304-0	23	73	P4	2000	Triode No. 2 Cap=G
6G5	6.3	JR-5403-0	----	----	P4	......	Eye Open
6G5	6.3	JR-5423-0	----	----	P4	......	Eye Closed
6G6	6.3	JR-5347-0	23	74	P4	2100	
6H4	6.3	JR-0407-0	0	61	P1*	......	Diode
6H5	6.3	JR-5403-0	----	----	P4	......	Eye Open
6H5	6.3	JR-5423-0	----	----	P4	......	Eye Closed
6H6	6.3	JR-0507-0	0	61	P1*	......	Diode No. 1
6H6	6.3	JR-0304-0	0	61	P1*	......	Diode No. 2
6J4	6.3	JR-3702-0	24	90	P4	6000	
6J5	6.3	JR-5307-0	23	73	P4	2000	
6J6	6.3	JR-5207-0	20	81	P4	3000	Triode No. 1
6J6	6.3	JR-6307-0	20	81	P4	3000	Triode No. 2
6J7	6.3	JR-0347-5	22	58	P4	1225	Cap=G
6J8	6.3	JR-5347-6	18	50	P4	1000	Heptode Cap−G
6J8	6.3	JR-5647-3	30	0	P4	500	Triode
6K4	6.3	DU-2105-0	39	74	P4	1900	
6K5	6.3	JR-0307-0	21	49	P4	1000	Cap−G
6K6	6.3	JR-5347-0	34	67	P4	1600	
6K7	6.3	JR-0347-5	19	66	P4	1450	Cap=G
6K8	6.3	JR-5347-6	11	50	P4	1000	Hexode Cap=G
6K8	6.3	JR-5647-3	0	77	P4	2400	Triode
6L4	6.3	JR-2306-0	34	81	P4	3000	
6L5	6.3	JR-5307-0	27	68	P4	1500	
6L6	6.3	JR-5347-2	23	88	P4	5000	
6L7	6.3	JR-0347-5	23	24	P4	650	Cap Grid Cap=G
6L7	6.3	JR-5347-2	27	24	P4	650	Pin Grid
6M3	6.3	HR-0003-0	0	68	P3*	......	CAP−P. REVERSE METER. SHORT ON 3
6N4	6.3	JR-3502-0	18	87	P4	4500	
6N5	6.3	JR-5403-0	----	----	P4	......	Eye Open
6N5	6.3	JR-5423-0	----	----	P4	......	Eye Closed
6N6	6.3	JR-5347-0	0	63	P4	1500	
6N7	6.3	JR-5607-3	12	65	P4	1500	Triode No. 1
6N7	6.3	JR-4307-6	12	65	P4	1500	Triode No. 2
6N8	6.3	EV-2613-9	17	75	P4	2200	Pent. Sect.
6N8	6.3	EV-2713-9	0	0	P1*	......	Diode No. 1
6N8	6.3	EV-2813-9	0	0	P1*	......	Diode No. 2
6P5	6.3	JR-5307-0	29	65	P4	1450	
6P7	6.3	BT-0457-6	28	55	P4	1100	Pent. Sect. Cap−G
6P7	6.3	BT-8607-4	28	0	P4	500	Triode
6Q4	6.3	EV-1903-0	12	88	P4	5000	Short on 1-2-3-5
6Q5	6.3	JR-5307-0	#	91	P5*	......	Strikes at about 60
6Q6	6.3	JR-0307-0	17	49	P4	1000	Triode Sect. Cap=G
6Q6	6.3	JR-0507-0	17	0	P1*	......	Diode No. 1
6Q6	6.3	JR-0407-0	17	0	P1*	......	Diode No. 2
6Q7	6.3	JR-0307-2	17	40	P4	800	Triode Sect. Cap=G
6Q7	6.3	JR-0507-3	17	0	P1*	......	Diode No. 1
6Q7	6.3	JR-0407-3	17	0	P1*	......	Diode No. 2
6R4	6.3	EV-1803-0	23	85	P4	4000	
6R7	6.3	JR-0307-2	18	72	P4	1900	Triode Sect. Cap=G
6R7	6.3	JR-0507-3	18	0	P1*	......	Diode No. 1
6R7	6.3	JR-0407-3	18	0	P1*	......	Diode No. 2
6R8	6.3	EV-8907-2	13	74	P4	1900	Triode Sect.
6R8	6.3	EV-0107-8	0	70	P1*	......	Diode No. 1
6R8	6.3	EV-0607-8	0	70	P1*	......	Diode No. 2
6R8	6.3	EV-0203-9	0	70	P1*	......	Diode No. 3
6S4	6.3	EV-6902-0	17	87	P4	4150	
6S7	6.3	JR-0347-5	27	70	P4	1750	Cap=G
6S8	6.3	JX-0601-0	10	37	P4	900	Triode Section Cap=G
6S8	6.3	JX-0305-0	10	0	P1*	......	Diode No. 1
6S8	6.3	JX-0401-0	10	0	P1*	......	Diode No. 2
6S8	6.3	JX-0201-0	10	0	P1*	......	Diode No. 3
6SA7	6.3	JR-7346-5	21	34	P4	750	Ampl. Sect.
6SA7	6.3	JR-5346-7	21	34	P4	750	Osc. Sect.
6SB7	6.3	JR-7346-5	16	34	P4	750	Ampl. Section
6SB7	6.3	JR-5346-7	40	73	P4	300	MICROMHOS ONLY OK OVER 240 ON 3000 SCALE OSC. SECT.
6SC7	6.3	JX-4506-1	0	51	P4	1000	Triode No. 1
6SC7	6.3	JX-3106-5	0	51	P4	1000	Triode No. 2
6SD7	6.3	JR-4765-3	16	78	P4	2500	
6SF5	6.3	JX-3501-2	12	52	P4	1000	
6SF7	6.3	JX-1643-2	0	73	P4	2000	Pent. Sect.
6SF7	6.3	JX-0543-6	0	0	P1*	......	Diode Sect.
6SG7	6.3	JR-4765-2	0	83	P4	3300	
6SH7	6.3	JR-4765-2	0	84	P4	3400	
6SJ7	6.3	JR-4765-3	22	68	P4	1575	
6SK7	6.3	JR-4765-3	22	72	P4	1900	
6SL7	6.3	JX-4506-1	0	58	P4	1250	Triode No. 1
6SL7	6.3	JX-2103-5	0	58	P4	1250	Triode No. 2
6SN7	6.3	JX-4506-1	23	73	P4	2000	Triode No. 1
6SN7	6.3	JX-2103-5	23	73	P4	2000	Triode No. 2
6SQ7	6.3	JX-1603-2	11	34	P4	750	Triode Sect.
6SQ7	6.3	JX-0503-6	11	0	P1*	......	Diode No. 1
6SQ7	6.3	JX-0403-6	11	0	P1*	......	Diode No. 2
6SR7	6.3	JX-1603-2	18	72	P4	1900	Triode Sect.
6SR7	6.3	JX-0503-6	18	0	P1*	......	Diode No. 1
6SR7	6.3	JX-0403-6	18	0	P1*	......	Diode No. 2
6SS7	6.3	JR-4765-3	19	71	P4	1850	
6ST7	6.3	JX-1603-2	15	72	P4	1900	Triode Sect.
6ST7	6.3	JX-0503-6	15	0	P1*	......	Diode No. 1
6ST7	6.3	JX-0403-6	15	0	P1*	......	Diode No. 2
6SU7	6.3	JX-4506-1	5	56	P4	1200	Triode No. 1
6SU7	6.3	JX-2103-5	5	56	P4	1200	Triode No. 2
6SV7	6.3	JX-1643-0	12	74	P4	2100	Pentode Section
6SV7	6.3	JX-1543-0	0	40	P1*	......	Diode Section
6SZ7	6.3	JX-1603-2	10	57	P4	1200	Triode Section
6SZ7	6.3	JX-0503-2	0	0	P1*	......	Diode No. 1
6SZ7	6.3	JX-0403-2	0	0	P1*	......	Diode No. 2
6T4	6.3	JR-2305-0	40	86	P4	4000	
6T5	6.3	JR-5403-0	----	----	P4	......	Eye Open
6T5	6.3	JR-5423-0	----	----	P4	......	Eye Closed
6T7	6.3	JR-0307-0	17	49	P4	1000	Triode Sect. Cap=G
6T7	6.3	JR-0507-0	17	0	P1*	......	Diode No. 1
6T7	6.3	JR-0407-0	17	0	P1*	......	Diode No. 2
6T8	6.3	EV-8907-6	11	56	P4	1200	Triode Section
6T8	6.3	EV-0607-1	0	50	P1*	......	Diode No. 1
6T8	6.3	EV-0203-7	0	50	P1*	......	Diode No. 2
6T8	6.3	EV-0107-8	0	50	P1*	......	Diode No. 3
6U3	6.3	EV-0903-0	0	66	P3*	......	
6U4	6.3	JX-0503-0	0	66	P3*	......	
6U5	6.3	JR-5403-0	----	----	P4	......	Eye Open
6U5	6.3	JR-5423-0	----	----	P4	......	Eye Closed
6U6	6.3	JR-5347-0	33	89	P4	6200	
6U7	6.3	JR-0347-5	21	68	P4	1600	Cap=G
6U8	6.3	EV-2637-0	15	76	P4	2250	Pent. Sect.
6U8	6.3	EV-9108-0	16	87	P4	4500	Triode Sect.
6V3	6.3	EV-0002-0	0	65	P3*	......	CAP−P. REVERSE METER
6V4	6.3	EV-0703-1	0	35	P3*	......	Plate No. 1
6V4	6.3	EV-0103-7	0	35	P3*	......	Plate No. 2
6V5	6.3	JX-5340-0	31	86	P4	4100	
6V6	6.3	JR-5347-2	21	85	P4	3700	
6V7	6.3	JR-0307-0	39	49	P4	975	Triode Sect. Cap=G
6V7	6.3	JR-0507-0	39	0	P1*	......	Diode No. 1
6V7	6.3	JR-0407-0	39	0	P1*	......	Diode No. 2
6V8	6.3	EV-6103-8	11	56	P4	1200	Triode Sect.
6V8	6.3	EV-0903-2	0	0	P1*	......	Diode No. 1
6V8	6.3	EV-0708-6	0	63	P1*	......	Diode No. 2
6V8	6.3	EV-0203-8	0	63	P1*	......	Diode No. 3
6W4	6.3	JX-0503-0	0	72	P3*	......	
6W5	6.3	JR-0507-0	0	33	P3*	......	Plate No. 1
6W5	6.3	JR-0307-0	0	33	P3*	......	Plate No. 2
6W6	6.3	JR-5347-0	30	90	P4	6500	
6W7	6.3	JR-0347-5	22	58	P4	1225	Cap−G
6X4	6.3	JR-0607-3	0	20	P3*	......	Plate No. 1
6X4	6.3	JR-0307-6	0	20	P3*	......	Plate No. 2
6X5	6.3	JR-0507-2	0	33	P3*	......	Plate No. 1
6X5	6.3	JR-0307-2	0	33	P3*	......	Plate No. 2
6X8	6.3	EV-7986-1	10	81	P4	3000	Pent. Sect.
6X8	6.3	EV-2386-1	20	81	P4	3000	Triode Sect.
6Y5	6.3	JR-0504-0	0	30	P3*	......	Plate No. 1
6Y5	6.3	JR-0304-0	0	30	P3*	......	Plate No. 2
6Y6	6.3	JR-5347-0	44	90	P4	6000	
6Y7	6.3	JR-5607-3	15	48	P4	1000	Triode No. 1
6Y7	6.3	JR-4307-6	15	48	P4	1000	Triode No. 2
6Z4	6.3	JR-0304-0	0	35	P3*	......	Plate No. 1
6Z4	6.3	JR-0204-0	0	35	P3*	......	Plate No. 2
6Z5	12.6	JS-0504-0	0	49	P3*	......	Plate No. 1
6Z5	12.6	JS-0304-0	0	49	P3*	......	Plate No. 2
6Z7	6.3	JR-5607-0	0	55	P4	1200	Triode No. 1
6Z7	6.3	JR-4307-0	0	55	P4	1200	Triode No. 2
6ZY5	6.3	JR-0507-0	0	30	P3*	......	Plate No. 1
6ZY5	6.3	JR-0307-0	0	30	P3*	......	Plate No. 2
7A4	6.3	JR-6207-0	23	73	P4	2000	
7A5	6.3	JR-6237-0	28	87	P4	6000	
7A6	6.3	JR-0607-5	0	49	P1*	......	Diode No. 1
7A6	6.3	JR-0302-5	0	49	P1*	......	Diode No. 2
7A7	6.3	JR-6237-4	27	71	P4	1750	
7A8	6.3	JR-6257-4	20	50	P4	1000	Ampl. Sect.
7A8	6.3	JR-4357-6	20	0	P4	500	Osc. Sect.
7AB7	6.3	HS-5314-0	10	71	P4	1800	
7AD7	6.3	JR-6237-4	10	90	P4	6200	
7AF7	6.3	JR-5607-0	21	79	P4	2600	Triode No. 1
7AF7	6.3	JR-4302-0	21	79	P4	2600	Triode No. 2
7AG7	6.3	JR-6237-4	0	82	P4	3000	
7AH7	6.3	JR-6237-4	0	83	P4	3300	
7AJ7	6.3	JR-6237-4	9	76	P4	2275	
7AK7	6.3	JR-6237-4	0	85	P4	4000	
7AU7	6.3	EV-7608-0	24	75	P4	2200	Triode No. 1
7AU7	6.3	EV-2103-0	24	75	P4	2200	Triode No. 2
7B4	6.3	JR-6207-0	12	52	P4	1000	
7B5	6.3	JR-6237-0	34	68	P4	1600	
7B6	6.3	JR-3207-0	11	34	P4	750	Triode Sect.
7B6	6.3	JR-0607-2	11	0	P1*	......	Diode No. 1
7B6	6.3	JR-0507-2	11	0	P1*	......	Diode No. 2
7B7	6.3	JR-6237-4	27	70	P4	1700	
7B8	6.3	JR-6257-4	18	67	P4	1500	Pent. Sect.
7B8	6.3	JR-4357-6	18	30	P4	650	Osc. Sect.
7C4	6.3	JR-0407-0	0	30	P1*	......	Diode
7C5	6.3	JR-6237-0	30	82	P4	3000	
7C6	6.3	JR-3207-0	10	18	P4	600	Triode Sect.
7C6	6.3	JR-0607-2	10	0	P1*	......	Diode No. 1
7C6	6.3	JR-0507-2	10	0	P1*	......	Diode No. 2
7C7	6.3	JR-6237-4	22	60	P4	1300	
7E5	6.3	JS-1304-0	15	82	P4	3000	
7E6	6.3	JR-3207-0	18	72	P4	1900	Triode Sect.
7E6	6.3	JR-0607-2	18	0	P1*	......	Diode No. 1
7E6	6.3	JR-0507-2	18	0	P1*	......	Diode No. 2
7E7	6.3	JR-6257-0	22	60	P4	1300	Pent. Sect.
7E7	6.3	JR-0407-2	22	0	P1*	......	Diode No. 1
7E7	6.3	JR-0307-2	22	0	P1*	......	Diode No. 2
7F7	6.3	JR-5607-3	0	60	P4	1300	Triode No. 1
7F7	6.3	JR-4302-6	0	60	P4	1300	Triode No. 2
7F8	6.3	HS-8605-0	10	86	P4	4000	Triode No. 1
7F8	6.3	HS-1304-0	10	86	P4	4000	Triode No. 2
7G7	6.3	JR-6237-4	18	73	P4	2000	
7G8	6.3	JR-5736-2	10	74	P4	2100	Tetrode No. 1
7G8	6.3	JR-4236-7	10	74	P4	2100	Tetrode No. 2
7H7	6.3	JR-6237-4	10	82	P4	3000	
7J7	6.3	JR-6257-4	18	38	P4	800	Heptode Sect.
7J7	6.3	JR-4357-6	18	51	P4	1000	Triode Sect.
7K7	6.3	JR-4302-0	0	50	P4	1000	Triode Sect.
7K7	6.3	JR-0507-0	0	0	P1*	......	Diode No. 1
7K7	6.3	JR-0607-0	0	0	P1*	......	Diode No. 2
7L7	6.3	JR-6237-4	12	73	P4	2000	
7N7	6.3	JR-5607-3	23	73	P4	2000	Triode No. 1
7N7	6.3	JR-4302-6	23	73	P4	2000	Triode No. 2
7Q7	6.3	JR-6237-4	21	0	P4	500	Ampl. Sect.
7Q7	6.3	JR-4237-6	21	40	P4	800	Osc. Sect.
7R7	6.3	JR-6257-0	10	82	P4	3000	Pent. Sect.
7R7	6.3	JR-0407-2	10	0	P1*	......	Diode No. 1
7R7	6.3	JR-0307-2	10	0	P1*	......	Diode No. 2
7S7	6.3	JR-6257-4	18	65	P4	1500	Heptode Sect.
7S7	6.3	JR-4357-6	0	65	P4	1500	Triode Sect.
7T7	6.3	JR-6237-4	9	82	P4	3000	
7V7	6.3	JR-6237-4	6	86	P4	4000	
7W7	6.3	JR-6237-5	11	82	P4	3000	
7X6	6.3	JR-0607-5	0	55	P3*	......	Plate No. 1
7X6	6.3	JR-0302-5	0	55	P3*	......	Plate No. 2
7X7	6.3	JR-3204-0	0	37	P4	900	Triode Sect.
7X7	6.3	JR-0504-0	0	61	P1*	......	Diode No. 1
7X7	6.3	JR-0607-0	0	61	P1*	......	Diode No. 2
7Y4	6.3	JR-0607-0	0	33	P3*	......	Plate No. 1
7Y4	6.3	JR-0307-0	0	33	P3*	......	Plate No. 2

TABLE OF CONTENTS

INTRODUCTION 5

SECTION 1

Cross Reference of American Receiving Tubes 7

SECTION 2

Cross Reference of Subminiature Tubes 70

SECTION 3

Industrial Substitutes For Receiving Tubes 82

SECTION 4

Foreign Substitutes For American Types 87

SECTION 5

American Substitutes For Foreign Types 97

SECTION 6

Picture-Tube Substitutes 106

INTRODUCTION

This revised edition of *Tube Substitution Handbook* includes over 1,000 more substitutes than Volume 4 . . . now including 7,712 substitutions.

Although tube substitution should not be performed indiscriminately, there are numerous occasions when it is necessary and feasible. For example, when you don't have the exact tube type with you on a TV service call, you'll either have to take the chassis to the shop (without knowing if a new tube would fix the trouble), or else make a special trip just to get the tube. The same applies if you're working in the shop and need a replacement you don't have—you have to make a special trip to the distributor. Such needless trips waste time and reduce profits.

Also, when a tube is out of production or the distributor does not have it in stock, a substitute is needed. On occasion, too, it is desirable to use an improved version of the tube being replaced. For example, replacing a 6BQ6 with the improved 6CU6 will usually result in better performance.

For your convenience, this handbook is divided into six sections. The first section lists receiving tubes and their substitutes. The second section is a cross reference of subminiature tubes. Section 3 lists receiving tubes which can be replaced with industrial types. (Industrial tubes are more rugged than receiving types in that their peak ratings and power-handling characteristics are much higher: therefore, it may be desirable to substitute an industrial tube to get more satisfactory results.)

Sections 4 and 5 list American and foreign equivalents. If you have an American tube and want to know what foreign type will serve as a substitute, refer to Section 4. If you have a foreign tube and need to know what American type can be used as a substitute, refer to Section 5. This is a very useful section because of the large amount of foreign-made equipment being sold in this country. (Additional substitutes may be obtained by cross-referencing the American substitutes in this section with listings in Section 1.)

The sixth section lists picture tubes and their substitutes. There are numerous occasions when a picture-tube substitute is necessary: The exact type may be out of production, or it may not be immediately available from the distributor; in either case it is necessary to use a substitute. Also, in custom installations a shorter-necked picture tube may have to be chosen. On the last page of the picture-tube section is a listing of those tubes requiring odd filament voltages (other than 6.3 volts), or low E_{g2} potentials. This information can be very useful when setting up your picture-tube testing and rejuvenating equipment.

For additional information, refer to the introductions to each section. Also pay particular attention to the various notes pertaining to the substitutions.

AUGUST, 1962

Howard W. Sams

Section 1

CROSS REFERENCE OF AMERICAN RECEIVING TUBES

This section lists *all* American receiving tubes which have been or are being manufactured. Also included are the latest tube types registered with EIA but not yet in production.

To use this listing, locate the tube type to be replaced in the left-hand column. Then refer to the right-hand column for the substitute. The substitutes are only those tubes which have similar, or improved, characteristics and can be inserted directly into the socket. No rewiring or mechanical changes are needed, although the associated service controls may have to be readjusted.

In some instances, the available space around the tube should be considered. For example, although electrically identical to a 6L6GB, a 6L6G is more than one inch taller and a half inch larger in diameter. Thus, the substitution may be physically impossible in some compact equipment.

Do not replace a tube in the right-hand column with one in the left-hand column because this may result in a tube with lesser qualifications being used. For example, where a high heater-to-cathode potential exists, a 6AX4 will hold up, whereas a 6W4 will not. Thus, you'll find the 6AX4 listed as a substitute for the 6W4, but not vice versa.

When no substitutes are shown, none are recommended. Refer to Section 2 to see if an industrial replacement is recommended.

The meaning of each foot-note symbol appears at the bottom of each page.

To Replace	*Use*
OOA	
O1A	
OA2	
OA3	OA3A, VR75
OA3A	OA3, VR75
OA4G	
OB2	
OB3	OB3A, VR90
OB3A	OB3, VR90
OC2	
OC3	OC3A, VR105
OC3A	OC3, VR105
OD3	OD3A, VR150
OD3A	OD3, VR150
OY4	OY4G
OY4G	OY4
OZ4	OZ4A, OZ4G (may require shield)
OZ4A	OZ4, OZ4G (may require shield)
OZ4G	OZ4, OZ4A
1A3	
1A4	1A4P, 1A4T, 1B4, 1B4P, 1B4T, 951, 32, 34
1A4P	1A4, 1A4T, 1B4, 1B4P, 1B4T, 951, 32, 34
1A4T	1A4, 1A4P, 1B4, 1B4P, 1B4T, 951, 32, 34
1A5G	1A5GT, 1T5GT
1A5GT	1A5G, 1T5GT
1A6	1C6*
1A7G	1A7GT
1A7GT	1A7G
1AB5	
1AB6	1AC6*
1AC6	1AB6*
1AD2	
1AE4	
1AF4	1AJ4, 1AM4, 1T4SF, 1AE4*, 1T4*

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
1AF5	1AH5, 1AR5, 1S5*
1AH5	1AF5, 1AR5, 1S5*
1AJ2	
1AJ4	1AF4, 1AM4, 1T4SF, 1AE4*, 1T4*
1AM4	1AF4, 1AJ4, 1T4SF, 1AE4*, 1T4*
1AN5	
1AQ5	1R5SF, 1R5*
1AR5	1AF5, 1AH5, 1S5*
1AS5	1U5SF, 1DN5*, 1U5*
1AU3	1N2, 1N2A
1AX2	1H2, 1S2A
1B3GT	1AU3, 1G3GT, 1G3GT/1B3GT, 1J3, 1J3A, 1K3, 1N2, 1N2A
1B4	1B4P, 1B4T, 951, 1A4, 1A4P, 1A4T, 32, 34
1B4P	1B4, 1B4T, 32, 951, 1A4, 1A4P, 1A4T, 34
1B4T	1B4, 1B4P, 32, 951, 1A4, 1A4P, 1A4T, 34
1B5	1B5/25S, 25, 25S
1B5/25S	1B5, 25, 25S
1B6	
1B7G	1B7GT
1B7GT	1B7G
1B8GT	1D8GT§
1C3	
1C5G	1C5GT, 1C5GT/G, 1Q5G, 1Q5GT, 1Q5GT/G
1C5GT	1C5G, 1C5GT/G, 1Q5G, 1Q5GT, 1Q5GT/G
1C5GT/G	1C5G, 1C5GT, 1Q5G, 1Q5GT, 1Q5GT/G
1C6	1A6*
1C7G	1D7G*
1D5G	1D5GP, 1D5GT, 1E5G, 1E5GP, 1E5GT
1D5GP	1D5G, 1D5GT, 1E5G, 1E5GP, 1E5GT
1D5GT	1D5G, 1D5GP, 1E5G, 1E5GP, 1E5GT
1D7G	1C7G*
1D8GT	1B8GT§
1DN5	1U5, 1AS5*, 1U5SF*

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
1E3	
1E4G	1E4GT, 1G4G, 1G4GT, 1G4GT/G
1E4GT	1E4G, 1G4G, 1G4GT, 1G4GT/G
1E5G	1E5GP, 1E5GT, 1D5G, 1D5GP, 1D5GT
1E5GP	1E5G, 1E5GT, 1D5G, 1D5GP, 1D5GT
1E5GT	1E5G, 1E5GP, 1D5G, 1D5GP, 1D5GT
1E7G	1E7GT
1E7GT	1E7G
1F4	
1F5G	
1F6	
1F7G	1F7GH, 1F7GT, 1F7GV, 1F7GY
1F7GH	1F7G, 1F7GT, 1F7GV, 1F7GY
1F7GT	1F7G, 1F7GH, 1F7GV, 1F7GY
1F7GV	1F7G, 1F7GH, 1F7GT, 1F7GY
1F7GY	1F7G, 1F7GH, 1F7GT, 1F7GV
1G3GT	1AU3, 1B3GT, 1G3GT/1B3GT, 1J3, 1J3A, 1K3, 1N2, 1N2A
1G3GT/1B3GT	1B3GT, 1G3GT, 1AU3, 1J3, 1J3A, 1K3, 1N2, 1N2A
1G4G	1G4GT, 1G4GT/G, 1E4G, 1E4GT
1G4GT	1G4G, 1G4GT/G, 1E4G, 1E4GT
1G4GT/G	1G4G, 1G4GT, 1E4G, 1E4GT
1G5G	1G5GT, 1J5G, 1J5GT
1G5GT	1G5G, 1J5G, 1J5GT
1G6G	1G6GT, 1G6GT/G
1G6GT	1G6G, 1G6GT/G
1G6GT/G	1G6G, 1G6GT
1H2	
1H4G	1H4GT
1H4GT	1H4G
1H5G	1H5GT
1H5GT	1H5G
1H6G	1H6GT
1H6GT	1H6G
1J3	1J3A, 1AU3, 1B3GT, 1G3GT, 1G3GT/1B3GT, 1K3, 1N2, 1N2A

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
1J3A	1AU3, 1N2, 1N2A
1J5G	1J5GT, 1G5G, 1G5GT
1J5GT	1J5G, 1G5G, 1G5GT
1J6G	1J6GT, 1J6GX
1J6GT	1J6G, 1J6GX
IJ66X	1J6G, 1J6GT
1K3	1AU3, 1B3GT, 1G3GT, 1G3GT/1B3GT, 1J3, 1J3A, 1N2, 1N2A
1K7G	
1L4	1AE4*
1L6	1U6*
1LA4	1LA4E
1LA4E	1LA4
1LA6	1LC6
1LB4	
1LB6	
1LC5	1LN5
1LC6	1LA6
1LD5	
1LE3	1LF3
1LF3	1LE3
1LG5	
1LH4	
1LN5	1LC5
1M3	1N3
1N2	1N2A, 1AU3, 1J3A
1N2A	1N2, 1AU3, 1J3A
1N3	1M3
1N5G	1N5GT, 1N5GT/G, 1P5G, 1P5GT
1N5GT	1N5G, 1N5GT/G, 1P5G, 1P5GT
1N5GT/G	1N5G, 1N5GT, 1P5G, 1P5GT
1N6G	1N6GT
1N6GT	1N6G
1P5G	1P5GT, 1N5G, 1N5GT, 1N5GT/G
1P5GT	1P5G, 1N5G, 1N5GT, 1N5GT/G
1Q5G	1Q5GT, 1Q5GT/G, 1C5G, 1C5GT, 1C5GT/G

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
1Q5GT	1Q5G, 1Q5GT/G, 1C5G, 1C5GT, 1C5GT/G
1Q5GT/G	1Q5G, 1Q5GT, 1C5G, 1C5GT, 1C5GT/G
1R4	
1R5	1R5SF*, 1AQ5*
1R5SF	1AQ5, 1R5*
1S2	1S2A, 1H2
1S2A	1S2, 1H2
1S4	
1S5	1AF5*, 1AH5*, 1AR5*
1SA6GT	
1SB6GT	
1T2	
1T4	1AE4*, 1AF4*, 1AJ4*, 1AM4*, 1T4SF*
1T4SF	1AE4*, 1AF4, 1AJ4, 1AM4, 1T4*
1T5GT	1A5G, 1A5GT
1U4	
1U5	1DN5, 1AS5*, 1U5SF*
1U5SF	1AS5, 1DN5*, 1U5*
1U6	1L6*
1V	6Z3
1V2	
1W4	
1X2	1X2A, 1X2B
1X2A	1X2B
1X2B	
1Z2	
2A3	2A3H
2A3H	2A3
2A5	
2A6	
2A7	2A7S
2A7S	2A7
2AF4	2AF4A, 2AF4B, 2T4§
2AF4A	2AF4B, 2T4§
2AF4B	
2AH2	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
2B3	
2B6	
2B7	2B7S
2B7S	2B7
2BN4	2BN4A
2BN4A	2BN4
2CW4	
2CY5	2EA5, 2EV5
2E5	
2EA5	2EV5
2EN5	
2ER5	2FQ5, 2FQ5A, 2FY5
2ES5	
2EV5	2EA5
2FH5	2ES5, 2FQ5, 2FQ5A, 2GK5
2FQ5	2FQ5A, 2ES5, 2GK5
2FQ5A	2FQ5, 2ES5, 2GK5
2FS5	2GU5
2FV6	
2FY5	2ER5, 2FQ5, 2FQ5A, 2GK5
2G5	
2GK5	2FQ5, 2FQ5A
2GU5	2FS5
2GW5	
2J2	
2S/4S	
2T4	2AF4§, 2AF4A§, 2AF4B§
2V2	3C2
2V3G	
2W3	2W3GT
2W3GT	2W3
2X2	2X2A, 2Y2
2X2A	2X2, 2Y2
2Y2	2X2, 2X2A
2Z2	2Z2/G84, G84
2Z2/G84	2Z2, G84
3A2	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
3A3	3AW3, 3B2
3A8GT	
3AF4A	3AF4B
3AF4B	
3AJ8	
3AL5	
3AU6	3BA6
3AV6	
3AW3	3A3
3B2	3A3, 3AW3
3B4	
3B5GT	
3B7	
3BA6	3AU6
3BC5	3CE5
3BE6	3BY6, 3CS6
3BN4	3BN4A
3BN4A	3BN4
3BN6	
3BU8	3BU8A, 3GS8, 3HS8
3BU8A	3BU8, 3GS8, 3HS8
3BX6	3BY7
3BY6	3BE6, 3CS6
3BY7	3BX6
3BZ6	3CB6, 3CF6, 3DK6
3C2	
3C4	3E5, 3V4*
3C5GT	3Q5G, 3Q5GT, 3Q5GT/G
3C6	XXB
3CB6	3BZ6, 3CF6, 3DK6
3CE5	3BC5
3CF6	3BZ6, 3CB6, 3DK6
3CS6	3BE6, 3BY6
3CY5	3EA5, 3EV5
3D6	3LE4*, 3LF4*
3DG4	
3DK6	3BZ6, 3CB6, 3CF6

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
3DT6	3DT6A
3DT6A	3DT6
3E5	3C4, 3V4*
3E6	
3EA5	3EV5
3EH7	3EJ7
3EJ7	3EH7
3ER5	3FQ5, 3FQ5A, 3FY5
3ES5	
3EV5	3EA5
3FH5	3ES5, 3FQ5, 3FQ5A, 3GK5
3FQ5	3FQ5A, 3ES5, 3GK5
3FQ5A	3FQ5, 3GK5
3FS5	3GU5
3FY5	3ER5
3GK5	3FQ5, 3FQ5A
3GS8	3BU8, 3BU8A, 3HS8
3GU5	3FS5
3GW5	
3HS8	3BU8, 3BU8A, 3GS8
3LE4	3LF4§, 3D6*
3LF4	3LE4§, 3D6*
3Q4	3S4§, 3S4SF*§
3Q5G	3Q5GT, 3Q5GT/G, 3C5GT
3Q5GT	3Q5G, 3Q5GT/G, 3C5GT
3Q5GT/G	3Q5G, 3Q5GT, 3C5GT
3S4	3S4SF*, 3Q4§
3S4SF	3W4, 3Z4, 3S4*, 3Q4*§
3V4	3C4*, 3E5*
3W4	3S4SF, 3Z4
3Z4	3S4SF, 3W4
4A6G	
4AU6	4BA6
4AV6	
4BA6	4AU6
4BC5	4CE5

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
4BC8	4BQ7A, 4BS8, 4BX8, 4BZ7, 4BZ8, 5BK7A
4BE6	4CS6
4BL8	5EA8§, 5GH8§, 5U8§, 5CQ8§
4BN4	
4BN6	
4BQ7A	4BC8, 4BS8, 4BX8, 4BZ7, 4BZ8, 5BK7A
4BS8	4BC8, 4BQ7A, 4BX8, 4BZ7, 4BZ8, 5BK7A
4BU8	4GS8, 4HS8
4BX8	4BC8, 4BQ7A, 4BS8, 4BZ7, 4BZ8, 5BK7A
4BZ6	4CB6, 4DE6, 4DK6
4BZ7	4BC8, 4BQ7A, 4BS8, 4BX8, 4BZ8, 5BK7A
4BZ8	4BC8, 4BQ7A, 4BS8, 4BX8, 4BZ7, 5BK7A
4CB6	4BZ6, 4DE6, 4DK6
4CE5	4BC5
4CM4	
4CS6	4BE6
4CX7	
4CY5	
4DE6	4BZ6, 4CB6, 4DK6
4DK6	4BZ6, 4CB6, 4DE6
4DT6	4DT6A
4DT6A	4DT6
4EH7	4EJ7
4EJ7	4EH7
4ES8	
4EW6	4GM6
4FS7	
4GK5	
4GM6	4EW6
4GS8	4BU8, 4HS8
4GW5	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
4GZ5	
4HS8	4BU8, 4GS8
5A6	
5AM8	
5AN8	
5AQ5	
5AR4	
5AS4	5AS4A, 5DB4, 5U4GB, 5V3, 5V3A
5AS4A	5AS4, 5DB4, 5U4GB, 5V3, 5V3A
5AS8	
5AT4	
5AT8	
5AU4	5V3, 5V3A
5AV8	5B8§
5AW4	5AS4, 5AS4A, 5AU4, 5DB4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5U4GA, 5U4GB, 5V3, 5V3A
5AX4GT	5AR4, 5AS4, 5AS4A, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5U4G, 5U4GA, 5U4GB, 5V4G, 5V4GA, 5V4GY
5AZ3	
5AZ4	5AR4, 5AX4GT, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4G, 5V4GA, 5V4GY, 5Y3G, 5Y3GA, 5Y3GT, 5Y3GT/G, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5B8	5AV8§
5BC3	
5BE8	5BR8§, 5CL8§, 5CL8A§, 5FV8§
5BK7A	4BC8, 4BQ7A, 4BS8, 4BX8, 4BZ7, 4BZ8
5BQ7A	5BS8, 5BZ7
5BR8	5BE8§, 5CL8§, 5CL8A§, 5FV8
5BS8	5BQ7A, 5BZ7
5BT8	
5BW8	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
5BZ7	5BQ7A, 5BS8
5CG4	5AR4, 5V4G, 5V4GA, 5V4GY, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5CG8	5FG7
5CL8	5CL8A, 5BE8§, 5BR8§, 5FV8§
5CL8A	5CL8, 5BE8§, 5BR8§, 5FV8§
5CM6	5CZ5
5CM8	5CR8§
5CQ8	5EA8§, 5GH8§, 5U8§
5CR8	5CM8§
5CU4	
5CZ5	
5DB4	5AS4, 5AS4A, 5U4GB
5DH8	5BR8§, 5CL8, 5CL8A§, 5FV8§
5DJ4	5DN4
5DN4	5DJ4
5EA8	5GH8, 5U8, 5CQ8§
5EH8	
5ES8	
5EU8	
5EW6	5GM6
5FG7	
5FV8	5BR8, 5BE8§, 5CL8§, 5CL8A§, 5DH8§
5GH8	5EA8, 5U8, 5CQ8§
5GM6	5EW6
5GX6	
5HG8	
5J6	
5R4G	5R4GTY, 5R4GY, 5R4GYA, 5R4GYB
5R4GTY	5R4G, 5R4GY, 5R4GYA, 5R4GYB
5R4GY	5R4G, 5R4GTY, 5R4GYA, 5R4GYB
5R4GYA	5R4G, 5R4GTY, 5R4GY, 5R4GYB
5R4GYB	
5T4	5AR4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB
5T8	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	Use
5U4G	5U4GA, 5U4GB, 5AR4, 5AS4, 5AS4A, 5AU4, 5DB4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V3, 5V3A
5U4GA	5U4GB, 5AS4, 5AS4A, 5AU4, 5DB4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5V3, 5V3A
5U4GB	5AS4, 5AS4A, 5DB4
5U8	5EA8, 5GH8, 5CQ8§
5V3	5V3A, 5AU4
5V3A	
5V4G	5V4GA, 5V4GY, 5AR4
5V4GA	5V4G, 5V4GY, 5AR4
5V4GY	5V4G, 5V4GA, 5AR4
5V6GT	
5W4	5W4G, 5W4GT, 5W4GT/G, 5AR4, 5AZ4, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4G, 5V4GA, 5V4GY, 5Y3G, 5Y3GA, 5Y3GT, 5Y3GT/G, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5W4G	5W4, 5W4GT, 5W4GT/G, 5AR4, 5AZ4, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4G, 5V4GA, 5V4GY, 5Y3G, 5Y3GA, 5Y3GT, 5Y3GT/G, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5W4GT	5W4, 5W4G, 5W4GT/G, 5AR4, 5AZ4, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4G, 5V4GA, 5V4GY, 5Y3G, 5Y3GA, 5Y3GT, 5Y3GT/G, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5W4GT/G	5W4, 5W4G, 5W4GT, 5AR4, 5AZ4, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4G, 5V4GA, 5V4GY, 5Y3G, 5Y3GA, 5Y3GT, 5Y3GT/G, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
5X3	13, 80, 83V, 88
5X4G	5X4GA
5X4GA	5X4G
5X8	
5Y3G	5Y3GA, 5Y3GT, 5Y3GT/G, 5AR4, 5AX4GT, 5AZ4, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4, 5V4GA, 5V4GY, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5Y3GA	5Y3G, 5Y3GT, 5Y3GT/G, 5AR4, 5AX4GT, 5AZ4, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4, 5V4GA, 5V4GY, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5Y3GT	5Y3G, 5Y3GA, 5Y3GT/G, 5AR4, 5AX4GT, 5AZ4, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4, 5V4GA, 5V4GY, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5Y3GT/G	5Y3G, 5Y3GA, 5Y3GT, 5AR4, 5AX4GT, 5AZ4, 5CG4, 5R4G, 5R4GTY, 5R4GY, 5R4GYA, 5R4GYB, 5T4, 5V4G, 5V4GA, 5V4GY, 5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG
5Y4G	5Y4GA, 5Y4GT
5Y4GA	5Y4G, 5Y4GT
5Y4GT	5Y4G, 5Y4GA
5Z3	83
5Z4	5Z4G, 5Z4GT, 5Z4GT/G, 5Z4MG, 5AR4, 5CG4, 5V4G, 5V4GA, 5V4GY
5Z4G	5Z4, 5Z4GT, 5Z4GT/G, 5Z4MG, 5AR4, 5CG4, 5V4G, 5V4GA, 5V4GY
5Z4GT	5Z4, 5Z4G, 5Z4GT/G, 5Z4MG, 5AR4, 5CG4, 5V4G, 5V4GA, 5V4GY
5Z4GT/G	5Z4, 5Z4G, 5Z4GT, 5Z4MG, 5AR4, 5CG4, 5V4G, 5V4GA, 5V4GY

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
5Z4MG	5Z4, 5Z4G, 5Z4GT, 5Z4GT/G, 5AR4, 5CG4, 5V4G, 5V4GA, 5V4GY
6A3	
6A4	6A4LA§
6A4LA	6A4§
6A5	6A5G
6A5G	6A5
6A6	6A6X
6A6X	6A6
6A7	6A7S
6A7S	6A7
6A8	6A8G, 6A8GT, 6A8GTX, 6A8MG, 6D8*, 6D8G*
6A8G	6A8, 6A8GT, 6A8GTX, 6A8MG, 6D8*, 6D8G*
6A8GT	6A8, 6A8G, 6A8GTX, 6A8MG, 6D8*, 6D8G*
6A8GTX	6A8, 6A8G, 6A8GT, 6A8MG, 6D8*, 6D8G*
6A8MG	6A8, 6A8G, 6A8GT, 6A8GTX, 6D8*, 6D8G*
6AB4	
6AB5	6N5, 6N5G
6AB6G	6N6*, 6N6G*, 6N6MG*
6AB7	6AB7Y, 6AC7, 6AC7A, 6AC7Y, 6AJ7
6AB7Y	6AB7, 6AC7, 6AC7A, 6AC7Y, 6AJ7
6AB8	
6AC5	6AC5G, 6AC5GT, 6AC5GT/G
6AC5G	6AC5, 6AC5GT, 6AC5GT/G
6AC5GT	6AC5, 6AC5G, 6AC5GT/G
6AC5GT/G	6AC5, 6AC5G, 6AC5GT
6AC6G	6AC6GT
6AC6GT	6AC6G
6AC7	6AC7A, 6AC7Y, 6AB7, 6AB7Y, 6AJ7
6AC7A	6AC7, 6AC7Y, 6AB7, 6AB7Y, 6AJ7
6AC7Y	6AC7, 6AC7A, 6AB7, 6AB7Y, 6AJ7
6AD5G	6AD5GT

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6AD5GT	6AD5G
6AD6G	6AF6G, 6AF6GT
6AD7G	
6AD8	6DC8, 6N8
6AE5	6AE5G, 6AE5GT, 6AE5GT/G, 6AF5G
6AE5G	6AE5, 6AE5GT, 6AE5GT/G, 6AF5G
6AE5GT	6AE5, 6AE5G, 6AE5GT/G, 6AF5G
6AE5GT/G	6AE5, 6AE5G, 6AE5GT, 6AF5G
6AE6G	
6AE7G	6AE7GT
6AE7GT	6AE7G
6AE8	
6AF3	6AL3*
6AF4	6AF4A, 6AN4§, 6T4§
6AF4A	6AF4, 6AN4§, 6T4§
6AF5G	6AE5, 6AE5G, 6AE5GT, 6AE5GT/G
6AF6G	6AF6GT, 6AD6G
6AF6GT	6AF6G, 6AD6G
6AF7G	6CD7*
6AF11	6AS11
6AG5	6BC5, 6CE5, 6AK5*, 6CY5*§, 6EA5*§, 6EV5*§
6AG6G	6M6G*
6AG7	6AG7Y, 6AK7
6AG7Y	6AG7, 6AK7
6AG11	
6AH4GT	
6AH5G	
6AH6	6AH6V
6AH6V	6AH6
6AH7GT	
6AJ4	6AM4§, 6CR4*§
6AJ5	
6AJ6	
6AJ7	6AB7, 6AB7Y, 6AC7, 6AC7A, 6AC7Y
6AJ8	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6AK5	6AG5*, 6BC5*, 6CE5*, 6CY5*§, 6EA5*§, 6EV5*§
6AK6	
6AK7	6AG7, 6AG7Y
6AK8	6T8, 6T8A
6AL3	
6AL5	6EB5
6AL6	6AL6G
6AL6G	6AL6
6AL7	6AL7GT
6AL7GT	6AL7
6AL11	
6AM4	6AJ4§
6AM5	
6AM6	
6AM8	6AM8A, 6HJ8
6AM8A	6AM8*†, 6HJ8
6AN4	6AF4§, 6AF4A§, 6T4§
6AN5	
6AN6	
6AN7	
6AN8	6AN8A
6AN8A	6AN8*†
6AQ4	6AL5 SAME AS 6AQ6 = TEST GRID -25. ENGLISH. 70
6AQ5	6AQ5A, 6BM5
6AQ5A	6AQ5*†, 6BM5*†
6AQ6	6AT6*, 6AV6*, 6BK6*, 6BT6*
6AQ7GT	
6AQ8	6DT8*
6AR5	
6AR6	
6AR7GT	
6AR8	
6AR11	
6AS4GT	6DQ4, 6CQ4*
6AS5	6CA5*
6AS6	6DB6*

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6AS7G	6AS7GA, 6AS7GT, 6080
6AS7GA	6AS7G, 6AS7GT, 6080
6AS7GT	6AS7G, 6AS7GA, 6080
6AS8	
6AS11	6AF11
6AT6	6AV6, 6BK6, 6BT6, 6AQ6*
6AT8	6AT8A
6AT8A	6AT8*†
6AU4GT	6AU4GTA, 6CQ4*, 6DA4A*, 6DE4*, 6DM4*, 6DQ4*
6AU4GTA	
6AU5GT	6FW5, 6AV5GA*, 6AV5GT*
6AU6	6AU6A, 6BA6, 7543
6AU6A	6AU6*†, 7543*†, 6BA6*†
6AU7	7AU7, 6AX7§
6AU8	6AU8A, 6AW8, 6AW8A, 6BA8, 6BA8A, 6BH8, 6CX8*
6AU8A	6AU8, 6AW8, 6AW8A, 6BA8, 6BA8A, 6BH8, 6CX8*
6AV4	6BX4*
6AV5GA	6AV5GT, 6FW5, 6AU5GT*
6AV5GT	6AV5GA, 6FW5, 6AU5GT*
6AV6	6AT6, 6BK6, 6BT6, 6AQ6*
6AV11	
6AW6	6CB6, 6CB6A, 6CF6, 6DC6, 6DE6, 6BH6*
6AW7GT	
6AW8	6AW8A, 6AU8, 6AU8A, 6BA8, 6BA8A, 6EB8*
6AW8A	6AW8, 6AU8, 6AU8A, 6BA8, 6BA8A, 6EB8*
6AX3	
6AX4GT	6AX4GTA, 6AX4GTB, 6AS4GT, 6DA4, 6DA4A, 6DM4, 6DQ4, 6AU4GT*, 6AU4GTA*, 6CQ4*, 6DE4*
6AX4GTA	6AX4GTB, 6DA4, 6DA4A, 6DM4, 6DQ4, 6AU4GT*, 6AU4GTA*, 6CQ4*, 6DE4*

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6AX4GTB	6CQ4*, 6DA4A*†, 6DE4*, 6DM4*†, 6DQ4*†
6AX5GT	
6AX6G	
6AX7	6AU7§, 7AU7§
6AX8	6EA8, 6GH8, 6U8, 6U8A, 6CQ8§, 6GJ8*
6AY3	6AY3A, 6BA3, 6BH3*
6AY3A	6AY3, 6BA3, 6BH3*
6AZ8	
6B3	
6B4G	
6B5	
6B6G	6Q7, 6Q7G, 6Q7GT, 6Q7MG, 6T7G*
6B7	6B7S
6B7S	6B7
6B8	6B8G, 6B8GT
6B8G	6B8, 6B8GT
6B8GT	6B8, 6B8G
6B10	
6BA3	6AY3, 6AY3A, 6BH3*
6BA6	6AU6, 6AU6A, 6BD6, 6CG6, 7543
6BA7	
6BA8	6BA8A, 6AU8, 6AU8A, 6AW8, 6AW8A, 6BH8
6BA8A	6BA8, 6AU8, 6AU8A, 6AW8, 6AW8A, 6BH8
6BC4	
6BC5	6AG5, 6CE5, 6AK5*, 6CY5*§, 6EA5*§, 6EV5*§
6BC7	
6BC8	6BQ7, 6BQ7A, 6BS8, 6BX8, 6BZ7, 6BZ8, 6HK8, X155, 6BK7*, 6BK7A*, 6BK7B*
6BD4	6BD4A, 6BK4*§
6BD4A	6BK4*§
6BD5GT	6AU5GT*, 6AV5GA*, 6AV5GT*, 6FW5*
6BD6	6BA6, 6CG6

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6BD7	
6BE6	6BY6, 6CS6
6BE7	
6BE8	6BE8A, 6BR8§, 6BR8A§, 6CL8§, 6CL8A§, 6FV8§, 6FV8A§
6BE8A	6BE8*†, 6BR8A§, 6CL8§, 6CL8A§, 6FV8§, 6FV8A§
6BF5	
6BF6	6BU6
6BF8	
6BG6G	6BG6GA
6BG6GA	6BG6G
6BH3	6AY3*, 6AY3A*, 6BA3*
6BH5	
6BH6	6AW6*, 6CB6*, 6CB6A*, 6CF6*, 6DC6*
6BH8	6AU8, 6AU8A, 6AW8, 6AW8A, 6BA8, 6BA8A
6BJ5	
6BJ6	6BJ6A
6BJ6A	6BJ6
6BJ7	
6BJ8	6BN8§
6BK4	6BD4A*§
6BK5	
6BK6	6AT6, 6AV6, 6BT6, 6AQ6*
6BK7	6BK7A, 6BK7B, 6BC8*, 6BQ7*, 6BQ7A*, 6BS8*, 6BX8*, 6BZ7*, 6BZ8*, 6HK8*, X155*
6BK7A	6BK7, 6BK7B, 6BC8*, 6BQ7*, 6BQ7A*, 6BS8*, 6BX8*, 6BZ7*, 6BZ8*, 6HK8*, X155*
6BK7B	6BK7*, 6BK7A*, 6BC8*, 6BQ7*, 6BQ7A*, 6BS8*, 6BX8*, 6BZ7*, 6BZ8*, 6HK8*, X155*
6BK8	
6BL4	6AU4GTA*, 6CQ4*
6BL5GT	

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6BL7GT	6BL7GTA, 6BX7GT, 6DN7
6BL7GTA	6BL7GT, 6BX7GT, 6DN7
6BL8	6U8, 6U8A
6BM5	6AQ5, 6AQ5A, 6DL5*, 6DS5*
6BM8	
6BN4	6BN4A
6BN4A	6BN4
6BN5	
6BN6	
6BN7	
6BN8	6BJ8§
6BQ5	7189, 7189A
6BQ6G	6BQ6GA, 6BQ6GT, 6BQ6GTA, 6BQ6GTB, 6BQ6GTB/6CU6, 6CU6, 6DQ6, 6DQ6A, 6DQ6B, 6FH6, 6GW6
6BQ6GA	6BQ6G, 6BQ6GT, 6BQ6GTA, 6BQ6GTB, 6BQ6GTB/6CU6, 6CU6, 6DQ6, 6DQ6A, 6DQ6B, 6FH6, 6GW6
6BQ6GT	6BQ6G, 6BQ6GA, 6BQ6GTA, 6BQ6GTB, 6BQ6GTB/6CU6, 6CU6, 6DQ6, 6DQ6A, 6DQ6B, 6FH6, 6GW6
6BQ6GTA	6BQ6G, 6BQ6GA, 6BQ6GT, 6BQ6GTB, 6BQ6GTB/6CU6, 6CU6, 6DQ6, 6DQ6A, 6DQ6B, 6FH6, 6GW6
6BQ6GTB	6BQ6GTB/6CU6, 6CU6, 6DQ6A, 6DQ6B, 6FH6, 6GW6
6BQ6GTB/6CU6	6BQ6GTB, 6CU6, 6DQ6A, 6DQ6B, 6FH6, 6GW6
6BQ7	6BQ7A, 6BC8, 6BS8, 6BX8, 6BZ7, 6BZ8, 6HK8, X155, 6BK7*, 6BK7A*, 6BK7B*
6BQ7A	6BQ7, 6BC8, 6BS8, 6BX8, 6BZ7, 6BZ8, 6HK8, X155, 6BK7*, 6BK7A*, 6BK7B*
6BR5	6DA5
6BR7	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6BR8	6BR8A, 6FV8, 6FV8A, 6BE8§, 6BE8A§, 6CL8§, 6CL8A§
6BR8A	6FV8, 6FV8A, 6BR8*†, 6BE8A§, 6CL8§, 6CL8A§
6BS5	
6BS7	
6BS8	6BC8, 6BQ7, 6BQ7A, 6BX8, 6BZ7, 6BZ8, 6HK8, X155, 6BK7*, 6BK7A*, 6BK7B*
6BT4	
6BT6	6AT6, 6AV6, 6BK6, 6AQ6*
6BT8	
6BU4	
6BU5	
6BU6	6BF6
6BU8	6BU8A, 6GS8, 6HS8
6BU8A	6BU8, 6GS8, 6HS8
6BV7	
6BV8	
6BW4	
6BW6	
6BW7	6BX6, 6EL7
6BW8	
6BX4	6AV4*
6BX6	6BW7, 6BY7, 6EL7, 6EC7*
6BX7GT	6BL7GT, 6BL7GTA, 6DN7
6BX8	6BC8, 6BQ7, 6BQ7A, 6BS8, 6BZ7, 6BZ8, 6HK8, X155, 6BK7*, 6BK7A*, 6BK7B*
6BY5G	6BY5GA
6BY5GA	6BY5G
6BY6	6BE6, 6CS6
6BY7	6BX6, 6EC7*
6BY8	
6BZ6	6DC6, 6HQ6

---

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6BZ7	6BC8, 6BQ7, 6BQ7A, 6BS8, 6BX8, 6BZ8, 6HK8, X155, 6BK7*, 6BK7A*, 6BK7B*
6BZ8	6BC8, 6BQ7, 6BQ7A, 6BS8, 6BX8, 6BZ7, 6HK8, X155, 6BK7*, 6BK7A*, 6BK7B*
6C4	
6C5	6C5G, 6C5GT, 6C5GT/G, 6C5MG, 6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG, 6L5G
6C5G	6C5, 6C5GT, 6C5GT/G, 6C5MG, 6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG, 6L5G
6C5GT	6C5, 6C5G, 6C5GT/G, 6C5MG, 6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG, 6L5G
6C5GT/G	6C5, 6C5G, 6C5GT, 6C5MG, 6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG, 6L5G
6C5MG	6C5, 6C5G, 6C5GT, 6C5GT/G, 6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG, 6L5G
6C6	77, 57AS*
6C7	
6C8G	6F8G*§
6C9	
6C10	
6CA4	
6CA5	6EH5, 6AS5*
6CA7	
6CB5	6CB5A, 6CL5
6CB5A	6CL5
6CB6	6CB6A, 6AW6, 6CF6, 6DC6, 6DE6, 6DK6, 6HQ6
6CB6A	6CB6*†, 6CF6*†, 6DC6*†, 6DE6*†, 6DK6*†, 6HQ6*†
6CD6G	6CD6GA, 6DN6, 6EX6

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6CD6GA	6EX6
6CD7	6AF7G*
6CE5	6AG5*†, 6BC5*†, 6AK5*, 6CY5*§, 6EA5*§, 6EV5*§
6CF6	6AW6, 6BZ6, 6CB6, 6CB6A, 6DC6, 6DE6, 6DK6, 6BH6*
6CG6	6BA6, 6BD6
6CG7	6FQ7§
6CG8	6CG8A, 6FG7
6CG8A	6FG7, 6CG8*†
6CH6	
6CH7	6CX7
6CH8	6CU8§
6CJ5	
6CJ6	6DR6
6CK4	
6CK5	
6CK6	
6CL5	
6CL6	
6CL8	6CL8A, 6BE8A§, 6BR8A§, 6FV8§, 6FV8A§
6CL8A	6CL8, 6BE8A§, 6BR8A§, 6FV8§, 6FV8A§
6CM4	
6CM5	
6CM6	6CZ5
6CM7	
6CM8	6CR8§, 6CS8§
6CN6	
6CN7	
6CQ4	
6CQ6	
6CQ8	6EA8§, 6GH8§, 6U8A§, 6GJ8*§
6CR4	6AJ4*§
6CR5	
6CR6	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6CR8	6CM8§, 6CS8§
6CS5	6DW5, 6CM6*
6CS6	6BE6, 6BY6
6CS7	6DA7*
6CS8	6CM8§, 6CR8§
6CT7	
6CU5	6AS5*
6CU6	6BQ6GTB, 6BQ6GTB/6CU6, 6DQ6A, 6DQ6B, 6FH6, 6GW6
6CU7	
6CU8	
6CV7	
6CW4	6DS4
6CW5	
6CW7	6FC7
6CX7	6CH7
6CX8	6EB8, 6GN8, 6HF8, 6JE8, 6AU8*, 6AU8A*, 6AW8*, 6AW8A*
6CY5	6EA5, 6EV5, 6AG5*§, 6AK5*§, 6BC5*§, 6CE5*§
6CY7	6DA7*
6CZ5	6DW5*
6D5	6D5G
6D5G	6D5
6D6	78, 58AS*
6D7	
6D8	6D8G, 6A8*, 6A8G*, 6A8GT*, 6A8GTX*, 6A8MG*
6D8G	6D8, 6A8*, 6A8G*, 6A8GT*, 6A8GTX*, 6A8MG*
6D10	
6DA4	6DA4A, 6AX4GTA, 6AX4GTB, 6DM4, 6DQ4, 6AU4GT*, 6AU4GTA*, 6CQ4*, 6DE4*
6DA4A	6DQ4, 6CQ4*
6DA5	6BR5
6DA6	

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6DA7	
6DB5	
6DB6	6AS6*
6DC6	6AW6, 6BZ6, 6CB6, 6CB6A, 6CF6, 6DE6, 6DK6, 6BH6*
6DC8	6AD8, 6N8
6DE4	6CQ4, 6DA4A*, 6DM4*, 6DQ4*
6DE6	6AW6, 6CB6, 6CB6A, 6CF6, 6DC6, 6DK6, 6HQ6, 6BH6*
6DE7	6EW7
6DG6GT	6W6, 6W6GT, 6EF6*, 6EY6*, 6EZ5*
6DG7	
6DJ8	6ES8, 6FW8*
6DK6	6CB6, 6CB6A, 6CF6, 6DC6, 6DE6, 6HQ6
6DL5	6BM5*
6DL7	
6DM4	6DA4A, 6DQ4, 6CQ4*, 6DE4*
6DN6	6CD6G, 6CD6GA, 6EX6
6DN7	
6DQ4	6CQ4*
6DQ5	
6DQ6	6DQ6A, 6DQ6B, 6FH6, 6GW6
6DQ6A	6DQ6B, 6FH6, 6GW6
6DQ6B	6GW6*†
6DR4	
6DR6	6CJ6
6DR7	6FD7, 6FR7
6DR8	
6DS4	6CW4
6DS5	6AQ5*, 6AQ5A*, 6BM5*
6DS8	
6DT5	6EM5*
6DT6	6DT6A
6DT6A	6DT6
6DT8	
6DW4	
6DW5	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6DX8	
6DY5	6CW5*
6DY7	6DZ7§
6DZ7	6DY7§
6DZ8	
6E5	
6E6	
6E7	
6E8	6E8G
6E8G	6E8
6EA5	6EV5, 6AG5*§, 6AK5*§, 6BC5*§, 6CE5*§
6EA7	6EM7*, 6GL7
6EA8	6GH8, 6U8A, 6AX8*†, 6CQ8§, 6GJ8*, 6U8*†
6EB5	6AL5
6EB8	6CX8, 6GN8, 6HF8, 6JE8, 6AU8*, 6AU8A*, 6HZ8*
6EC7	6BX6*, 6BY7*
6EF6	6EY6*, 6EZ5*
6EH5	6CA5
6EH7	6EJ7
6EH8	
6EJ7	6EH7
6EL7	6BW7, 6BX6
6EM5	
6EM7	6EA7*, 6GL7*
6EQ7	
6ER5	6FY5*
6ES5	
6ES6	6ET6, 6FD6
6ES8	6DJ8, 6FW8*
6ET6	6ES6, 6FD6
6ET7	
6EU7	
6EU8	
6EV5	6EA5, 6AG5*§, 6AK5*§, 6BC5*§, 6CE5*§
6EV7	

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6EW6	6GM6
6EW7	
6EX6	6CD6GA
6EY6	6EZ5*
6EZ5	
6EZ8	
6F5	6F5G, 6F5GT, 6F5MG
6F5G	6F5, 6F5GT, 6F5MG
6F5GT	6F5, 6F5G, 6F5MG
6F5MG	6F5, 6F5G, 6F5GT
6F6	6F6G, 6F6GT, 6F6GT/G, 6F6MG
6F6G	6F6, 6F6GT, 6F6GT/G, 6F6MG
6F6GT	6F6, 6F6G, 6F6GT/G, 6F6MG
6F6GT/G	6F6, 6F6G, 6F6GT, 6F6MG
6F6MG	6F6, 6F6G, 6F6GT, 6F6GT/G
6F7	6F7S
6F7S	6F7
6F8G	6C8G*§
6FA7	
6FC7	6CW7
6FD6	6ES6, 6ET6
6FD7	6FR7
6FE5	
6FE8	
6FG5	
6FG6	
6FG7	
6FH5	6ES5, 6FQ5*, 6FQ5A*, 6GK5*
6FH6	6DQ6B, 6GW6
6FH8	
6FJ7	
6FM7	
6FM8	
6FN5	
6FQ5	6FQ5A, 6GK5, 6ES5*
6FQ5A	6FQ5, 6GK5, 6ES5*
6FQ7	

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6FR7	6FD7
6FS5	6FG5, 6GU5*
6FV6	
6FV8	6FV8A, 6BR8A, 6BE8A§, 6CL8§, 6CL8A§, 6BR8*†
6FV8A	6FV8, 6BR8A, 6BE8A§, 6CL8§, 6CL8A§, 6BR8*†
6FW5	
6FW8	6DJ8*, 6ES8*
6FY5	6ER5*
6FY7	
6G4	
6G5	6G5/6H5, 6H5, 6T5, 6U5/6G5, 6U5
6G5/6H5	6G5, 6H5, 6U5, 6U5/6G5
6G6G	6G6GT
6G6GT	6G6G
6G11	
6GA8	6CG7*
6GB5	
6GC5	
6GC6	
6GE5	
6GE8	
6GF5	6GE5
6GH8	6EA8, 6U8A, 6AX8*†, 6CQ8§, 6GJ8*, 6U8*†
6GJ5	
6GJ8	6AX8*, 6EA8*, 6GH8*, 6U8*, 6U8A*, 6CQ8*§
6GK5	6FQ5, 6FQ5A
6GK6	
6GL7	6EA7
6GM5	
6GM6	6EW6, 6HQ6*
6GM8	
6GN6	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6GN8	6CX8, 6EB8, 6HF8, 6JE8, 6AU8*, 6AU8A*, 6AW8*, 6AW8A*, 6HZ8*
6GS8	6BU8, 6BU8A, 6HS8
6GT5	
6GU5	6FS5*
6GV5	
6GW5	
6GW6	6DQ6B
6GW8	
6GX6	6GY6
6GY6	6GX6
6GY8	
6H4	6H4GT
6H4GT	6H4
6H5	6G5, 6G5/6H5, 6T5, 6U5, 6U5/6G5
6H6	6H6G, 6H6GT, 6H6GT/G, 6H6MG
6H6G	6H6, 6H6GT, 6H6GT/G, 6H6MG
6H6GT	6H6, 6H6G, 6H6GT/G, 6H6MG
6H6GT/G	6H6, 6H6G, 6H6GT, 6H6MG
6H6MG	6H6, 6H6G, 6H6GT, 6H6GT/G
6H8G	
6HB6	
6HC8	6BM8*
6HF8	6CX8, 6EB8, 6GN8, 6JE8, 6HZ8*
6HG8	
6HJ8	6AM8A, 6AM8*†
6HK8	6BC8, 6BQ7, 6BQ7A, 6BS8, 6BX8, 6BZ7, 6BZ8, X155, 6BK7*, 6BK7A*, 6BK7B*
6HL8	6BL8
6HQ6	6BZ6, 6CB6, 6CB6A, 6DE6, 6DK6, 6GM6*
6HR6	
6HS8	6BU8, 6BU8A, 6GS8
6HU8	
6HW8	
6HZ8	6EB8*, 6GN8*, 6HF8*, 6JE8*
6J4	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	Use
6J5	6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG, 6C5, 6C5G, 6C5GT/G, 6C5MG, 6L5G
6J5G	6J5, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG, 6C5, 6C5G, 6C5GT, 6C5GT/G, 6C5MG, 6L5G
6J5GT	6J5, 6J5G, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG, 6C5, 6C5G, 6C5GT, 6C5GT/G, 6C5MG, 6L5G
6J5GT/G	6J5, 6J5G, 6J5GT, 6J5GTX, 6J5GX, 6J5MG, 6C5, 6C5G, 6C5GT, 6C5GT/G, 6C5MG, 6L5G
6J5GTX	6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GX, 6J5MG, 6C5, 6C5G, 6C5GT, 6C5GT/G, 6C5MG, 6L5G
6J5GX	6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5MG, 6C5, 6C5G, 6C5GT, 6C5GT/G, 6C5MG, 6L5G
6J5MG	6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6C5, 6C5G, 6C5GT, 6C5GT/G, 6C5MG, 6L5G
6J6	6J6A
6J6A	6J6*†
6J7	6J7G, 6J7GT, 6J7GTX, 6J7MG, 6W7G*
6J7G	6J7, 6J7GT, 6J7GTX, 6J7MG, 6W7G*
6J7GT	6J7, 6J7G, 6J7GTX, 6J7MG, 6W7G*
6J7GTX	6J7, 6J7G, 6J7GT, 6J7MG, 6W7G*
6J7MG	6J7, 6J7G, 6J7GT, 6J7GTX, 6W7G*
6J8G	
6J9	
6J11	
6JC8	
6JE8	6EB8, 6GN8, 6HF8, 6HZ8*
6JH8	
6JK8	
6JU8	
6K5	6K5G, 6K5GT

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6K5G	6K5, 6K5GT
6K5GT	6K5, 6K5G
6K6	6K6G, 6K6GT, 6K6GT/G
6K6G	6K6, 6K6GT, 6K6GT/G
6K6GT	6K6, 6K6G, 6K6GT/G
6K6GT/G	6K6, 6K6G, 6K6GT
6K7	6K7G, 6K7GT, 6K7GTX, 6K7MG, 6U7G
6K7G	6K7, 6K7GT, 6K7GTX, 6K7MG, 6U7G
6K7GT	6K7, 6K7G, 6K7GTX, 6K7MG, 6U7G
6K7GTX	6K7, 6K7G, 6K7GT, 6K7MG, 6U7G
6K7MG	6K7, 6K7G, 6K7GT, 6K7GTX, 6U7G
6K8	6K8G, 6K8GT, 6K8GTX
6K8G	6K8, 6K8GT, 6K8GTX
6K8GT	6K8, 6K8G, 6K8GTX
6K8GTX	6K8, 6K8G, 6K8GT
6K11	6Q11
6KA8	
6KD8	
6L4	
6L5G	6C5, 6C5G, 6C5GT, 6C5GT/G, 6C5MG, 6J5, 6J5G, 6J5GT, 6J5GT/G, 6J5GTX, 6J5GX, 6J5MG
6L6	6L6G, 6L6GA, 6L6GAY, 6L6GB, 6L6GC, 6L6GT, 6L6GX, 6L6Y, 5881, 7581, 7581A
6L6G	6L6, 6L6GA, 6L6GAY, 6L6GB, 6L6GC, 6L6GT, 6L6GX, 6L6Y, 5881, 7581, 7581A
6L6GA	6L6, 6L6G, 6L6GAY, 6L6GB, 6L6GC, 6L6GT, 6L6GX, 6L6Y, 5881, 7581, 7581A
6L6GAY	6L6, 6L6G, 6L6GA, 6L6GB, 6L6GC, 6L6GT, 6L6GX, 6L6Y, 5881, 7581, 7581A
6L6GB	6L6, 6L6G, 6L6GA, 6L6GAY, 6L6GC, 6L6GT, 6L6GX, 6L6Y, 5881, 7581, 7581A

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6L6GC	7581, 7581A
6L6GT	6L6, 6L6G, 6L6GA, 6L6GAY, 6L6GB, 6L6GC, 6L6GX, 6L6Y, 5881, 7581, 7581A
6L6GX	6L6, 6L6G, 6L6GA, 6L6GAY, 6L6GB, 6L6GC, 6L6GT, 6L6Y, 5881, 7581, 7581A
6L6Y	6L6, 6L6G, 6L6GA, 6L6GAY, 6L6GB, 6L6GC, 6L6GT, 6L6GX, 5881, 7581, 7581A
6L7	6L7G
6L7G	6L7
6M3	
6M5	
6M6G	6AG6G*
6M7G	6K7§, 6K7G§, 6K7GT§, 6K7GTX§, 6K7MG§
6M8GT	
6M11	
6N3	6U3
6N4	
6N5	6N5G, 6AB5
6N5G	6N5, 6AB5
6N6	6N6G, 6N6MG, 6AB6G*
6N6G	6N6, 6N6MG, 6AB6G*
6N6MG	6N6, 6N6G, 6AB6G*
6N7	6N7G, 6N7GT, 6N7GT/G
6N7G	6N7, 6N7GT, 6N7GT/G
6N7GT	6N7, 6N7G, 6N7GT/G
6N7GT/G	6N7, 6N7G, 6N7GT
6N8	6AD8, 6DC8
6P5G	6P5GT, 6P5GT/G
6P5GT	6P5G, 6P5GT/G
6P5GT/G	6P5G, 6P5GT
6P7G	
6Q6	6Q6G
6Q6G	6Q6

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6Q7	6Q7G, 6Q7GT, 6Q7MG, 6B6G, 6T7G*
6Q7G	6Q7, 6Q7GT, 6Q7MG, 6B6G, 6T7G*
6Q7GT	6Q7, 6Q7G, 6Q7MG, 6B6G, 6T7G*
6Q7MG	6Q7, 6Q7G, 6Q7GT, 6T7G*
6Q11	
6R3	6AF3*, 6AL3*
6R6G	
6R7	6R7G, 6R7GT, 6R7GT/G, 6R7MG
6R7G	6R7, 6R7GT, 6R7GT/G, 6R7MG
6R7GT	6R7, 6R7G, 6R7GT/G, 6R7MG
6R7GT/G	6R7, 6R7G, 6R7GT, 6R7MG
6R7MG	6R7, 6R7G, 6R7GT, 6R7GT/G
6R8	6T8, 6T8A
6S2	6S2A
6S2A	6S2
6S4	6S4A
6S4A	
6S5	
6S6GT	
6S7	6S7G, 6K7*, 6K7G*, 6K7GT*, 6K7GTX*, 6K7MG*
6S7G	6S7, 6K7*, 6K7G*, 6K7GT*, 6K7GTX*, 6K7MG*
6S8GT	
6SA7	6SA7G, 6SA7GT, 6SA7GT/G, 6SA7GTX, 6SA7GTY, 6SA7Y, 6SB7, 6SB7Y
6SA7G	6SA7, 6SA7GT, 6SA7GT/G, 6SA7GTX, 6SA7GTY, 6SA7Y, 6SB7, 6SB7Y
6SA7GT	6SA7, 6SA7G, 6SA7GT/G, 6SA7GTX, 6SA7GTY, 6SA7Y, 6SB7, 6SB7Y
6SA7GT/G	6SA7, 6SA7G, 6SA7GT, 6SA7GTX, 6SA7GTY, 6SA7Y, 6SB7, 6SB7Y
6SA7GTX	6SA7, 6SA7G, 6SA7GT, 6SA7GT/G, 6SA7GTY, 6SA7Y, 6SB7, 6SB7Y
6SA7GTY	6SA7, 6SA7G, 6SA7GT, 6SA7GT/G, 6SA7GTX, 6SA7Y, 6SB7, 6SB7Y

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6SA7Y	6SA7, 6SA7G, 6SA7GT, 6SA7GT/G, 6SA7GTX, 6SA7GTY, 6SB7, 6SB7Y
6SB7	6SB7Y
6SB7Y	6SB7
6SC7	6SC7GT, 6SC7GTY
6SC7GT	6SC7, 6SC7GTY
6SC7GTY	6SC7, 6SC7GT
6SD7GT	6SE7GT
6SE7GT	6SD7GT
6SF5	6SF5GT
6SF5GT	6SF5
6SF7	6SF7GT
6SF7GT	6SF7
6SG7	6SG7GT, 6SG7Y
6SG7GT	6SG7, 6SG7Y
6SG7Y	6SG7, 6SG7GT
6SH7	6SH7GT
6SH7GT	6SH7
6SJ7	6SJ7GT, 6SJ7GTX, 6SJ7GTY, 6SJ7Y
6SJ7GT	6SJ7, 6SJ7GTX, 6SJ7GTY, 6SJ7Y
6SJ7GTX	6SJ7, 6SJ7GT, 6SJ7GTY, 6SJ7Y
6SJ7GTY	6SJ7, 6SJ7GT, 6SJ7GTX, 6SJ7Y
6SJ7Y	6SJ7, 6SJ7GT, 6SJ7GTX, 6SJ7GTY
6SK7	6SK7, 6SK7GT, 6SK7GT/G, 6SK7GTX, 6SK7GTY, 6SK7Y, 6SS7*, 6SS7GT*
6SK7G	6SK7, 6SK7GT, 6SK7GT/G, 6SK7GTX, 6SK7GTY, 6SK7Y, 6SS7*, 6SS7GT*
6SK7GT	6SK7, 6SK7G, 6SK7GT/G, 6SK7GTX, 6SK7GTY, 6SK7Y, 6SS7*, 6SS7GT*
6SK7GT/G	6SK7, 6SK7G, 6SK7GT, 6SK7GTX, 6SK7GTY, 6SK7Y, 6SS7*, 6SS7GT*
6SK7GTX	6SK7, 6SK7G, 6SK7GT, 6SK7GT/G, 6SK7GTY, 6SK7Y, 6SS7*, 6SS7GT*
6SK7GTY	6SK7, 6SK7G, 6SK7GT, 6SK7GT/G, 6SK7GTX, 6SK7Y, 6SS7*, 6SS7GT*

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6SK7Y	6SK7, 6SK7G, 6SK7GT, 6SK7GT/G, 6SK7GTX, 6SK7GTY, 6SS7*, 6SS7GT*
6SL7GT	6SL7GTY
6SL7GTY	6SL7GT
6SN7GT	6SN7GTA, 6SN7GTB, 6SN7GTY
6SN7GTA	6SN7GTB
6SN7GTB	6SN7GTA*†
6SN7GTY	6SN7GT, 6SN7GTA, 6SN7GTB
6SQ7	6SQ7G, 6SQ7GT, 6SQ7GT/G, 6SZ7*
6SQ7G	6SQ7, 6SQ7GT, 6SQ7GT/G, 6SZ7*
6SQ7GT	6SQ7, 6SQ7G, 6SQ7GT/G, 6SZ7*
6SQ7GT/G	6SQ7, 6SQ7G, 6SQ7GT, 6SZ7*
6SR7	6SR7GT, 6ST7*
6SR7GT	6SR7, 6ST7*
6SS7	6SS7GT, 6SK7*, 6SK7G*, 6SK7GT*, 6SK7GT/G*, 6SK7GTX*, 6SK7GTY*, 6SK7Y*
6SS7GT	6SS7, 6SK7*, 6SK7G*, 6SK7GT*, 6SK7GT/G*, 6SK7GTX*, 6SK7GTY*, 6SK7Y*
6ST7	6SR7*, 6SR7GT*
6SU7GT	6SU7GTX, 6SU7GTY
6SU7GTX	6SU7GT, 6SU7GTY
6SU7GTY	6SU7GT, 6SU7GTX
6SV7	6SV7GT
6SV7GT	6SV7
6SZ7	6SQ7*, 6SQ7G6, 6SQ7GT*, 6SQ7GT/G*
6T4	6AF4§, 6AF4A§, 6AN4§
6T5	6G5, 6G5/6H5, 6H5, 6U5, 6U5/6G5
6T6	
6T7G	6B6G*, 6Q7*, 6Q7G*, 6Q7GT*, 6Q7MG*
6T8	6T8A, 6AK8
6T8A	6T8*†, 6AK8*†
6U3	

---

§ May not work in all circuits.
* Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6U4GT	6AS4GT, 6AX4GT, 6AX4GTA, 6AX4GTB, 6DA4, 6DA4A, 6DM4, 6DQ4, 6W4GT, 6W4GTA, 6AU4GT*, 6AU4GTA*, 6CQ4*, 6DE4*
6U5	6G5, 6G5/6H5, 6H5, 6T5, 6U5/6G5
6U5/6G5	6U5, 6G5, 6G5/6H5, 6H5, 6T5
6U6GT	6Y6G*, 6Y6GA*, 6Y6GT*
6U7GT	6K7, 6K7G, 6K7GT, 6K7GTX, 6K7MG, 6S7*, 6S7G*
6U8	6U8A, 6AX8, 6EA8, 6GH8, 6CQ8§, 6GJ8*
6U8A	6U8*†, 6EA8, 6GH8, 6AX8*†, 6GJ8*, 6CQ8§
6V3	6V3A
6V3A	6V3
6V4	6CA4*
6V5G	6V5GT
6V5GT	6V5G
6V6	6V6G, 6V6GT, 6V6GTA, 6V6GT/G, 6V6GTX, 6V6GX, 6V6Y, 7408
6V6G	6V6, 6V6GT, 6V6GTA, 6V6GT/G, 6V6GTX, 6V6GX, 6V6Y, 7408
6V6GT	6V6, 6V6G, 6V6GTA, 6V6GT/G, 6V6GTX, 6V6GX, 6V6Y, 7408
6V6GTA	6V6*†, 6V6G*†, 6V6GT*†, 6V6GT/G*†, 6V6GTX*†, 6V6GX*†, 6V6Y*†, 7408*†
6V6GT/G	6V6, 6V6G, 6V6GT, 6V6GTA, 6V6GTX, 6V6GX, 6V6Y, 7408
6V6GTX	6V6, 6V6G, 6V6GT, 6V6GTA, 6V6GT/G, 6V6GX, 6V6Y, 7408
6V6GX	6V6, 6V6G, 6V6GT, 6V6GTA, 6V6GT/G, 6V6GTX, 6V6Y, 7408
6V6Y	6V6, 6V6G, 6V6GT, 6V6GTA, 6V6GT/G, 6V6GTX, 6V6GX, 7408
6V7G	
6V8	

---

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6W4GT	6W4GTA, 6AS4GT, 6AX4GT, 6AX4GTA, 6AX4GTB, 6DA4, 6DA4A, 6DM4, 6DQ4, 6U4GT, 6AU4GT*, 6AU4GTA*, 6CQ4*, 6DE4*
6W4GTA	6AX4GTA, 6AX4GTB, 6DA4, 6DA4A, 6DM4, 6DQ4, 6U4GT, 6AU4GT*, 6AU4GTA*, 6CQ4*, 6DE4*
6W5G	6W5GT, 6AX5GT*
6W5GT	6W5G, 6AX5GT*
6W6	6W6GT, 6DG6GT, 6EF6*, 6EY6*, 6EZ5*
6W6GT	6W6, 6DG6GT, 6EF6*, 6EY6*, 6EZ5*
6W7G	6J7*, 6J7G*, 6J7GT*, 6J7GTX*, 6J7MG*
6X4	6BX4, 6AV4*
6X5	6X5G, 6X5GT, 6X5GT/G, 6X5MG, 6AX5*, 6W5G*, 6W5GT*
6X5G	6X5, 6X5GT, 6X5GT/G, 6X5MG, 6AX5*, 6W5G*, 6W5GT*
6X5GT	6X5, 6X5G, 6X5GT/G, 6X5MG, 6AX5*, 6W5G*, 6W5GT*
6X5GT/G	6X5, 6X5G, 6X5GT, 6X5MG, 6AX5*, 6W5G*, 6W5GT*
6X5MG	6X5, 6X5G, 6X5GT, 6X5GT/G, 6AX5*, 6W5G*, 6W5GT*
6X8	6X8A
6X8A	6X8*†
6Y3G	
6Y5	6Y5G, 6Y5GT, 6Y5V
6Y5G	6Y5, 6Y5GT, 6Y5V
6Y5GT	6Y5, 6Y5G, 6Y5V
6Y5V	6Y5, 6Y5G, 6Y5GT
6Y6G	6Y6GA, 6Y6GT, 6U6GT*
6Y6GA	6Y6G, 6Y6GT, 6U6GT*
6Y6GT	6Y6G, 6Y6GA, 6U6GT*
6Y7G	
6Z3	1V
6Z4	84/6Z4
6Z5	12Z5, 6Z5/12Z5

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
6Z5/12Z5	6Z5, 12Z5
6Z6MG	
6Z7G	
6ZY5G	6X5*, 6X5G*, 6X5GT*, 6X5GT/G*
7A4	XXL
7A5	
7A6	
7A7	7A7LM, 7H7, 7B7*
7A7LM	7A7, 7H7, 7B7*
7A8	
7AB7	
7AD7	
7AF7	
7AG7	7AH7, 7G7*, 7T7*
7AH7	7AG7, 7B7, 7H7*
7AJ7	7C7*
7AK7	
7AN7	7EK7
7AU7	6AU7, 6AX7§
7B4	7A4§, XXL§
7B5	7B5LT, 7C5*, 7C5LT*
7B5LT	7B5, 7C5*, 7C5LT*
7B6	7B6LM, 7C6*
7B6LM	7B6, 7C6*
7B7	7AH7, 7A7*, 7A7LM*, 7H7*
7B8	7B8LM
7B8LM	7B8
7C4	
7C5	7C5LT, 7B5*, 7B5LT*
7C5LT	7C5, 7B5*, 7B5LT*
7C6	7B6*, 7B6LM*
7C7	7AJ7*, 7G7*, 7L7*
7D7	
7DJ8	7ES8
7E5	
7E6	
7E7	7R7

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
7ED7	
7EK7	7AN7
7ES8	7DJ8
7EY6	
7F7	—— 7AF7 - 7N7 - G.
7F8	
7FC7	7EK7
7G7	7V7, 7AG7*, 7C7*, 7L7*
7G8	
7H7	7A7, 7A7LM, 7AH7*, 7B7*
7HG8	
7J7	7S7
7K7	
7L7	7C7*, 7G7*, 7V7*
7N7	7AF7*
7Q7	
7R7	7E7
7S7	7J7
7T7	7AG7*, 7V7*
7V7	7G7, 7L7*, 7T7*
7W7	
7X6	
7X7	XXFM
7Y4	7Z4*
7Z4	
8AU8	8AU8A, 8AW8A, 8BA8A, 8BH8
8AU8A	8AU8, 8AW8A, 8BA8A, 8BH8
8AW8A	8AU8, 8AU8A, 8BA8A, 8BH8
8B8	
8B10	
8BA8A	8AU8, 8AU8A, 8AW8A, 8BH8
8BH8	8AU8, 8AU8A, 8AW8A, 8BA8A
8BN8	
8BQ5	
8BQ7A	
8CG7	8FQ7§
8CM7	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
8CN7	
8CS7	
8CW5	
8CX8	8EB8, 8GN8, 8JE8
8CY7	
8EB8	8CX8, 8GN8, 8JE8
8EM5	
8ET7	
8FQ7	
8GN8	8CX8, 8EB8, 8JE8
8HG8	
8JE8	8CX8, 8EB8, 8GN8
8JK8	
8KA8	
8SN7GTB	
9A8	9U8, 9U8A
9AK8	
9AQ8	
9AU7	
9BM5	
9BR7	
9BR8	9CL8§
9BW6	
9CL8	9BR8§
9DZ8	
9EF6	
9EN7	
9GB8	
9U8	9U8A, 9A8
9U8A	9U8†, 9A8†
9X8	
10	
10BQ5	
10C8	
10DA7	
10DE7	10EW7
10DR7	10FD7, 10FR7

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
10EB8	10GN8, 10HF8, 11JE8
10EG7	10EM7
10EM7	10EG7
10EW7	
10FD7	10FR7
10FR7	10FD7
10GN8	10EB8, 10HF8, 11JE8
10HF8	10EB8, 10GN8, 11JE8
10JY8	
11	
11AR11	
11C5	12DM5
11CY7	
11JE8	10EB8, 10GN8, 10HF8
12	
12A	
12A4	
12A5	
12A6	12A6GT, 12A6Y, 12V6GT*§
12A6GT	12A6, 12A6Y, 12V6GT*§
12AGY	12A6, 12A6GT, 12V6GT*§
12A7	
12A8	12A8G, 12A8GT
12A8G	12A8, 12A8GT
12A8GT	12A8, 12A8G
12AB5	
12AC5	
12AC6	12AF6§
12AD5	
12AD6	12AG6
12AD7	12AX7*, 12AX7A*, 12BZ7*, 12DF7*, 12DM7*, 12DT7*, 7025*, 7025A*
12AE6	12AE6A, 12FT6
12AE6A	12AE6, 12FT6
12AE7	
12AF3	
12AF6	12BL6, 12AC6, 12EK6§

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
12AG6	12AD6
12AH6	
12AH7GT	
12AH8	
12AJ6	
12AJ7	
12AL5	
12AL8	
12AL11	
12AQ5	12BM5*
12AS5	12CA5*, 12R5*
12AT6	12AT6A, 12AV6, 12AV6A, 12BK6, 12BT6
12AT6A	12AV6A, 12AT6*†, 12AV6*†, 12BK6*†, 12BT6*†
12AT7	12AZ7*, 12AZ7A*
12AU6	12AU6A, 12BA6, 12BA6A
12AU6A	12BA6A, 12AU6*†, 12BA6*†
12AU7	12AU7A, 12AX7§, 12AX7A§
12AU7A	12AU7, 12AX7§, 12AX7A§
12AU8	
12AV5GA	12AV5GT*†
12AV5GT	12AV5GA
12AV6	12AV6A, 12AT6, 12AT6A, 12BK6, 12BT6
12AV6A	12AT6A, 12AV6*†, 12AT6*†, 12BK6*†, 12BT6*†
12AV7	
12AW6	
12AX3	
12AX4GT	12AX4GTA, 12AX4GTB, 12D4, 12D4A, 12DM4, 12DQ4
12AX4GTA	12AX4GTB, 12D4, 12D4A, 12DM4, 12DQ4, 12AX4GT*†
12AX4GTB	12D4A, 12DM4, 12DQ4

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
12AX7	12AX7A, 12DF7, 12DT7, 7025, 7025A, 12AD7*, 12AU7§, 12AU7A§, 12BZ7*, 12DM7*
12AX7A	12AX7, 12DF7, 12DT7, 7025, 7025A, 12AD7*, 12AU7§, 12AU7A§, 12BZ7*, 12DM7*
12AY3	
12AY7	
12AZ7	12AZ7A, 12AT7*
12AZ7A	12AZ7*†, 12AT7*
12B3	
12B4	12B4A
12B4A	12B4*†
12B7	14A7, 14H7
12B8GT	
12BA6	12BA6A, 12AU6, 12AU6A
12BA6A	12AU6A, 12AU6*†, 12BA6*†
12BA7	
12BD6	12BA6, 12BA6A
12BE6	12BE6A, 12CS6
12BE6A	12BE6*†, 12CS6*†
12BF6	12BU6
12BH7	12BH7A
12BH7A	12BH7*†
12BK5	
12BK6	12AT6, 12AT6A, 12AV6, 12AV6A, 12BT6
12BL6	12AF6, 12EK6§
12BM5	12AQ5*
12BN6	12BN6A
12BN6A	12BN6*†
12BQ6GA	12BQ6GTA, 12BQ6GTB, 12BQ6GTB/12CU6, 12CU6, 12DQ6, 12DQ6A, 12DQ6B, 12GW6
12BQ6GT	12BQ6GA, 12BQ6GTA, 12BQ6GTB, 12BQ6GTB/12CU6, 12CU6, 12DQ6, 12DQ6A, 12DQ6B, 12GW6

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
12BQ6GTA	12BQ6GA, 12BQ6GTB, 12BQ6GTB/12CU6, 12CU6, 12DQ6, 12DQ6A, 12DQ6B, 12GW6
12BQ6GTB	12BQ6GTB/12CU6, 12CU6, 12DQ6A, 12DQ6B, 12GW6
12BQ6GTB/12CU6	12BQ6GTB, 12CU6, 12DQ6A, 12DQ6B, 12GW6
12BR7	12BR7A
12BR7A	12BR7*†
12BT6	12AT6, 12AT6A, 12AV6, 12AV6A, 12BK6
12BU6	12BF6
12BV7	12BY7, 12BY7A, 12DQ7
12BW4	
12BX6	13EC7*
12BY7	12BY7A, 12BV7, 12DQ7
12BY7A	12DQ7, 12BY7*†, 12BV7*†
12BZ6	
12BZ7	
12C5	12C5/12CU5, 12CU5, 12R5, 12AS5*, 12DM5*
12C5/12CU5	12C5, 12CU5, 12R5, 12AS5*, 12DM5*
12C8	
12CA5	12EH5, 12AS5*, 12ED5*
12CM6	
12CN5	
12CR5	
12CR6	
12CS5	12DT5, 12DW5, 12CM6*
12CS6	12BE6, 12BE6A
12CT8	
12CU5	12C5, 12C5/12CU5, 12R5, 12AS5*, 12DM5*
12CU6	12BQ6GTB, 12BQ6GTB/12CU6, 12DQ6A, 12DQ6B, 12GW6
12CX6	12EZ6
12CY6	

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
12D4	12D4A, 12AX4GTB, 12DM4, 12DQ4
12D4A	12DM4, 12DQ4
12DB5	
12DE8	
12DF5	
12DF7	12AX7, 12AX7A, 12DT7, 7025, 7025A, 12AD7*, 12BZ7*, 12DM7*
12DJ8	
12DK5	
12DK7	
12DL8	
12DM4	12D4A, 12DQ4
12DM5	11C5, 12AS5*, 12C5*, 12C5/12CU5*, 12CU5*, 12R5*
12DM7	12AD7*, 12AX7*, 12AX7A*, 12BZ7*, 12DF7*, 12DT7*, 7025*, 7025A*
12DQ4	
12DQ6	12DQ6A, 12DQ6B, 12GW6
12DQ6A	12DQ6B, 12GW6
12DQ6B	12GW6
12DQ7	12BY7A, 12BY7*†, 12BV7*†
12DS7	12DS7A
12DS7A	12DS7
12DT5	
12DT6	
12DT7	12AX7, 12AX7A, 12DF7, 7025, 7025A, 12AD7*, 12BZ7*, 12DM7*
12DT8	
12DU7	
12DV7	
12DV8	
12DW5	
12DW7	7247
12DW8	
12DY8	
12DZ6	12EA6, 12EK6
12DZ8	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
12E5GT	12J5, 12J5GT
12EA6	12DZ6, 12EK6
12EC8	
12ED5	12CA5*, 12EH5*
12EF6	
12EG6	
12EH5	12CA5, 12ED5*
12EK6	12DZ6, 12EA6
12EL6	
12EM6	
12EN6	12L6GT, 12W6GT
12EQ7	
12EZ6	12CX6
12F5GT	
12F8	
12FA6	
12FB5	
12FK6	12FM6
12FM6	12FK6
12FQ8	
12FR8	
12FT6	12AE6, 12AE6A
12FV7	
12FX8	12FX8A
12FX8A	12FX8
12G4	12H4
12G8	
12GA6	
12GC6	
12GE5	
12GJ5	
12GN6	
12GT5	
12GW6	12DQ6B
12H4	
12H6	
12HU8	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
12J5	12J5GT
12J5GT	12J5
12J7	12J7G, 12J7GT
12J7G	12J7, 12J7GT
12J7GT	12J7, 12J7G
12J8	
12K5	
12K7G	12K7GT
12K7GT	12K7G
12K8	12K8GT, 12K8Y
12K8GT	12K8, 12K8Y
12K8Y	12K8, 12K8GT
12L6GT	12EN6, 12W6GT
12L8GT	
12Q7	12Q7G, 12Q7GT
12Q7G	12Q7, 12Q7GT
12Q7GT	12Q7, 12Q7G
12R5	
12S7	
12S8	12S8GT
12S8GT	12S8
12SA7	12SA7G, 12SA7GT, 12SA7GT/G, 12SA7GTY, 12SA7Y, 12SY7, 12SY7GT
12SA7G	12SA7, 12SA7GT, 12SA7GT/G, 12SA7GTY, 12SA7Y, 12SY7, 12SY7GT
12SA7GT	12SA7, 12SA7G, 12SA7GT/G, 12SA7GTY, 12SA7Y, 12SY7, 12SY7GT
12SA7GT/G	12SA7, 12SA7G, 12SA7GT, 12SA7GTY, 12SA7Y, 12SY7, 12SY7GT
12SA7GTY	12SA7, 12SA7G, 12SA7GT, 12SA7GT/G, 12SA7Y, 12SY7, 12SY7GT
12SA7Y	12SA7, 12SA7G, 12SA7GT, 12SA7GT/G, 12SA7GTY, 12SY7, 12SY7GT
12SC7	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
12SF5	12SF5GT
12SF5GT	12SF5
12SF7	12SF7GT, 12SF7Y
12SF7GT	12SF7, 12SF7Y
12SF7Y	12SF7, 12SF7GT
12SG7	12SG7GT, 12SG7Y
12SG7GT	12SG7, 12SG7Y
12SG7Y	12SG7, 12SG7GT
12SH7	12SH7GT
12SH7GT	12SH7
12SJ7	12SJ7GT
12SJ7GT	12SJ7
12SK7	12SK7G, 12SK7GT, 12SK7GT/G, 12SK7GTY, 12SK7Y
12SK7G	12SK7, 12SK7GT, 12SK7GT/G, 12SK7GTY, 12SK7Y
12SK7GT	12SK7, 12SK7G, 12SK7GT/G, 12SK7GTY, 12SK7Y
12SK7GT/G	12SK7, 12SK7G, 12SK7GT, 12SK7GTY, 12SK7Y
12SK7GTY	12SK7, 12SK7G, 12SK7GT, 12SK7GT/G, 12SK7Y
12SK7Y	12SK7, 12SK7G, 12SK7GT, 12SK7GT/G, 12SK7GTY
12SL7GT	
12SN7GT	12SN7GTA, 12SX7GT
12SN7GTA	
12SQ7	12SQ7G, 12SQ7GT, 12SQ7GT/G
12SQ7G	12SQ7, 12SQ7GT, 12SQ7GT/G
12SQ7GT	12SQ7, 12SQ7G, 12SQ7GT/G
12SQ7GT/G	12SQ7, 12SQ7G, 12SQ7GT
12SR7	12SR7GT, 12SW7, 12SW7GT
12SR7GT	12SR7, 12SW7, 12SW7GT
12SW7	12SW7GT, 12SR7, 12SR7GT
12SW7GT	12SW7, 12SR7, 12SR7GT
12SX7GT	12SN7GT, 12SN7GTA

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
12SY7	12SY7GT, 12SA7, 12SA7G, 12SA7GT, 12SA7GT/G, 12SA7GTY, 12SA7Y
12SY7GT	12SY7, 12SA7, 12SA7G, 12SA7GT, 12SA7GT/G, 12SA7GTY, 12SA7Y
12U7	
12V6GT	12A6*§, 12A6GT*§, 12A6Y*§
12W6GT	12EN6, 12L6GT
12X3	
12X4	
12Z3	14Z3
12Z5	6Z5, 6Z5/12Z5
13	5X3, 80, 83V, 88
13CM5	
13DE7	
13DR7	13FD7, 13FR7
13EC7	12BX6*
13EM7	15EA7
13FD7	13FR7
13FR7	13FD7
13GC8	
14A4	
14A5	
14A7	12B7, 14H7
14AF7	XXD, 14N7*
14B6	
14B8	
14C5	
14C7	
14DA7	
14E6	
14E7	14R7
14F7	
14F8	
14G6	
14GT8	14GT8A, 14JG8
14GT8A	14GT8†, 14JG8†
14H7	12B7, 14A7

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
14J7	14S7
14JG8	14GT8, 14GT8A
14K7	
14L7	
14N7	14AF7*
14Q7	
14R7	14E7
14S7	14J7
14V7	
14W7	
14X7	
14Y4	
14Y7	
14Z3	12Z3
15	
15A6	
15A8	
15AF11	
15CW5	
15DQ8	
15EA7	13EM7
15EW6	
15FY7	
15HB6	
16	16B, 81
16A5	15CW5
16A8	
16AQ3	
16B	16, 81
16GK6	
16GK8	
17AV5GA	
17AX3	17BE3
17AX4GT	17AX4GTA, 17D4, 17D4A, 17DM4, 17DQ4
17AX4GTA	17D4, 17D4A, 17DM4, 17DQ4

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
17AY3	
17BE3	
17BH3	
17BQ6GTB	17DQ6A, 17DQ6B, 17GW6
17C5	17CU5, 17R5
17C8	
17C9	17C9A
17C9A	17C9†
17CA5	
17CU5	17C5, 17R5
17D4	17D4A, 17AX4GTA, 17DM4, 17DQ4
17D4A	17DM4, 17DQ4
17DE4	
17DM4	17D4A, 17DQ4
17DQ4	
17DQ6	17DQ6A, 17DQ6B, 17GW6
17DQ6A	17DQ6B, 17GW6
17DQ6B	17GW6
17EW8	
17GE5	
17GJ5	
17GT5	
17GW6	17DQ6B
17H3	
17HC8	
17JK8	
17JZ8	
17L6GT	17W6GT
17R5	
17W6GT	17L6GT
17Z3	
18	
18A5	
18DZ8	
18FW6	18FW6A, 18GD6, 18GD6A
18FW6A	18GD6A, 18FW6†, 18GD6†
18FX6	18FX6A

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
18FX6A	18FX6†
18FY6	18FY6A, 18GE6, 18GE6A
18FY6A	18GE6A, 18FY6†, 18GE6†
18GD6	18GD6A, 18FW6, 18FW6A
18GD6A	18FW6A, 18GD6†, 18FW6†
18GE6	18GE6A, 18FY6, 18FY6A
18GE6A	18FY6A, 18GE6†, 18FY6†
18HB8	
19	
19AQ5	
19AU4	19AU4GT, 19AU4GTA, 17DE4
19AU4GT	19AU4, 19AU4GTA, 17DE4
19AU4GTA	
19BG6G	19BG6GA
19BG6GA	19BG6G
19C8	19T8, 19T8A
19CL8A	19CL8B, 19JN8
19CL8B	19CL8A†, 19JN8†
19CS4	
19D8	
19DE7	
19EA8	19EA8A
19EA8A	19EA8†
19EZ8	
19HR6	
19HV8	
19J6	
19JN8	19CL8A, 19CL8B
19Q9	
19T8	19T8A, 19C8
19T8A	19T8†, 19C8†
19V8	
19X3	
19X8	
19Y3	19X3
20	
20EQ7	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
20EZ7	
20J8	
21A6	21B6
21A7	
21B6	21A6
21EX6	25CD6GB
21GY5	
22	
22BH3	
22DE4	
24A	24S, 35§, 35/51§, 51§, 35S§, 51S§, 35S/51S§
24S	24A, 35§, 35/51§, 51§, 35S§, 51S§, 35S/51S§
25	25S, 1B5, 1B5/25S
25A6	25A6G, 25A6GT, 25A6GT/G, 25A6MG
25A6G	25A6, 25A6GT, 25A6GT/G, 25A6MG
25A6GT	25A6, 25A6G, 25A6GT/G, 25A6MG
25A6GT/G	25A6, 25A6G, 25A6GT, 25A6MG
25A6MG	25A6, 25A6G, 25A6GT, 25A6GT/G
25A7G	25A7GT, 25A7GT/G
25A7GT	25A7G, 25A7GT/G
25A7GT/G	25A7G, 25A7GT
25AC5G	25AC5GT, 25AC5GT/G
25AC5GT	25AC5G, 25AC5GT/G
25AC5GT/G	25AC5G, 25AC5GT
25AV5GA	25AV5GT
25AV5GT	25AV5GA
25AX4GT	25D4
25B5	
25B6	25B6G, 25B6GT
25B6G	25B6, 25B6GT
25B6GT	25B6, 25B6G
25B8	25B8GT
25B8GT	25B8
25BK5	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	Use
25BQ6GA	25BQ6GTB, 25BQ6GTB/25CU6, 25CU6, 25DQ6, 25DQ6A
25BQ6GT	25BQ6GA, 25BQ6GTB, 25BQ6GTB/25CU6, 25CU6, 25DQ6, 25DQ6A
25BQ6GTB	25BQ6GTB/25CU6, 25CU6, 25DQ6A
25BQ6GTB/25CU6	25BQ6GTB, 25CU6, 25DQ6A
25C5	
25C6G	25C6GA
25C6GA	25C6G
25CA5	25C5, 25EH5
25CD6G	25CD6GA, 25CD6GB, 25DN6, 21EX6
25CD6GA	25CD6GB, 25DN6, 21EX6
25CD6GB	21EX6
25CR5	
25CU6	25BQ6GTB, 25BQ6GTB/25CU6, 25DQ6A
25D4	
25D5	
25D8GT	
25DK4	
25DN6	25CD6GB, 21EX6
25DQ6	25DQ6A
25DQ6A	
25DT5	
25E5	
25EC6	25CD6GB, 21EX6
25EH5	25CA5
25F5	
25GF6	
25L6	25L6G, 25L6GT, 25L6GT/G, 25W6GT
25L6G	25L6, 25L6GT, 25L6GT/G, 25W6GT
25L6GT	25L6, 25L6G, 25L6GT/G, 25W6GT
25L6GT/G	25L6, 25L6G, 25L6GT, 25W6GT
25L7G	25L7GT, 25L7GT/G
25L7GT	25L7G, 25L7GT/G
25L7GT/G	25L7G, 25L7GT
25N6	25N6G

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
25N6G	25N6
25Q6GT	
25S	25, 1B5, 1B5/25S
25SQ7GT	
25U4GT	25AX4GT, 25D4, 25W4GT
25W4GT	25AX4GT, 25D4, 25U4GT
25W6GT	25L6, 25L6G, 25L6GT, 25L6GT/G
25X6GT	
25Y4	25Y4GT
25Y4GT	25Y4
25Y5	25Z5, 25Z5MG
25Z3	
25Z4	25Z4GT
25Z4GT	25Z4
25Z5	25Z5MG, 25Y5
25Z5MG	25Z5, 25Y5
25Z6	25Z6G, 25Z6GT, 25Z6GT/G, 25Z6MG
25Z6G	25Z6, 25Z6GT, 25Z6GT/G, 25Z6MG
25Z6GT	25Z6, 25Z6G, 25Z6GT/G, 25Z6MG
25Z6GT/G	25Z6, 25Z6G, 25Z6GT, 25Z6MG
25Z6MG	25Z6, 25Z6G, 25Z6GT, 25Z6GT/G
26	
26A5	
26A6	26CG6
26A7	26A7GT
26A7GT	26A7
26BK6	
26C6	
26CG6	26A6
26D6	
26E6G	
26Z5	
27	27S, 56, 56S, 27A*
27A	27*, 27S*
27GB5	28GB5
27S	27, 56, 56S, 27A*
28D7	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
28GB5	27GB5
28Z5	
30	
30A5	
30AE3	
30AG11	
31	
31A3	
31BX7GT	
32	1A4, 1A4P, 1A4T, 1B4, 1B4P, 1B4T, 34, 951
32A8	
32ET5	32ET5A, 34GD5, 34GD5A
32ET5A	32ET5†, 34GD5A
32L7GT	
33	
34	1A4, 1A4P, 1A4T, 1B4, 1B4P, 1B4T, 32, 951
34GD5	34GD5A, 32ET5, 32ET5A
34GD5A	32ET5A, 34GD5†, 32ET5†
35	35S, 35/51, 35S/51S, 51, 51S, 24A§, 24S§
35/51	35, 35S/51S, 51, 35S, 51S, 24A§, 24S§
35A3	35C3
35A5	35A5LT
35A5LT	35A5
35B5	
35C3	35A3
35C5	35C5A
35C5A	35C5†
35CD6GA	
35D5	
35DZ8	
35EH5	35EH5A
35EH5A	35EH5†
35FN5	
35GL6	
35HB8	

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
35L6G	35L6GT, 35L6GT/G
35L6GT	35L6G, 35L6GT/G
35L6GT/G	35L6G, 35L6GT
35S	35S/51S, 51S, 35/51, 35, 51, 24A§, 24S§
35S/51S	35S, 51S, 35/51, 35, 51, 24A§, 24S§
35W4	35W4A
35W4A	35W4†
35Y4	
35Z3	35Z3LT
35Z3LT	35Z3
35Z4	35Z4GT
35Z4GT	35Z4
35Z5G	35Z5GT, 35Z5GT/G
35Z5GT	35Z5G, 35Z5GT/G
35Z5GT/G	35Z5G, 35Z5GT
35Z6G	
36	36A, 64*, 64A*
36A	36, 64*, 64A*
36AM3	36AM3A, 36AM3B
36AM3A	36AM3, 36AM3B
36AM3B	36AM3†, 36AM3A†
37	76, 56A*, 56AS*, 67*, 67A*
38	
38A3	
39	39/44, 44
39/44	39, 44
40	
40A1	
40B2	
40FR5	
40Z5	40Z5GT, 40Z5/45Z5GT, 45Z5GT
40Z5/45Z5GT	40Z5, 40Z5GT, 45Z5GT
40Z5GT	40Z5, 40Z5/45Z5GT, 45Z5GT
41	42*
42	41*
43	
44	39, 39/44

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	Use
45	45A
45A	45
45A5	
45B5	
45Z3	
45Z5GT	40Z5, 40Z5/45Z5GT, 40Z5GT
46	
47	
48	
49	
50	
50A1	
50A5	
50AX6G	50AX6GT
50AX6GT	50AX6G
50B5	
50BK5	
50BM8	
50C5	50C5A
50C5A	50C5†
50C6G	50C6GA
50C6GA	50C6G
50CA5	50EH5, 50EH5A
50CD6G	
50DC4	
50EH5	50EH5A, 50CA5
50EH5A	50EH5†, 50CA5†
50FA5	
50FE5	
50FK5	
50FY8	
50HC6	
50HK6	50HC6
50L6G	50L6GT
50L6GT	50L6G
50X6	
50Y6G	50Y6GT, 50Y6GT/G

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
50Y6GT	50Y6G, 50Y6GT/G
50Y6GT/G	50Y6G, 50Y6GT
50Y7GT	50Z7G, 50Z7GT
50Z6G	50AX6G, 50AX6GT
50Z7G	50Z7GT, 50Y7GT
50Z7GT	50Z7G, 50Y7GT
51	51S, 35, 35/51, 35S/51S, 35S, 24A§, 24S§
51S	51, 35, 35/51, 35S/51S, 35S, 24A§, 24S§
52	
53	
55	55S
55N3	
55S	55
56	56S, 27, 27S
56A	56AS, 67A, 67, 37*, 76*
56AS	56A, 67, 67A, 37*, 76*
56S	56, 27, 27S
57	57S
57AS	6C6*, 77*
57S	57
58	58S
58AS	6D6*, 78*
58S	58
59	
60E3	
60EH5	
60FX5	
64	64A, 65, 65A, 36*, 36A*
64A	64, 65, 65A, 36*, 36A*
65	65A, 64, 64A
65A	65, 64, 64A
67	56A, 56AS, 67A, 37*, 76*
67A	56A, 56AS, 67, 37*, 76*
68	68A
68A	68
70A7GT	
70L7GT	

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
71	71A*
71A	71*
75	75S
75S	75
76	37, 56A*, 56AS*, 67*, 67A*
77	6C6, 57AS*
78	6D6, 58AS
79	
80	5X3, 13, 83V, 88
81	16, 16B
82	82V
82V	82
83	5Z3
83V	
84/6Z4	6Z4
G84	2Z2, 2Z2/G84
85	85S
85AS	
85S	85
88	82, 82V
89	89Y
89Y	89
95	2A5
96	
V99	
X99	
117L7GT	117L7/M7GT, 117M7GT
117L7/M7GT	117L7GT, 117M7GT
117M7GT	117L7GT, 117L7/M7GT
117N7GT	117P7GT
117P7GT	117N7GT
117Z3	
117Z4GT	
117Z6G	117Z6GT, 117Z6GT/G
117Z6GT	117Z6G, 117Z6GT/G
117Z6GT/G	117Z6G, 117Z6GT
182B/482B	71*, 71A*

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	*Use*
807	
950	
951	1A4, 1A4P, 1A4T, 1B4P, 1B4T, 32, 34
5642	
5879	
5881	6L6GC, 7581, 7581A
6080	6AS7G, 6AS7GA, 6AS7GT
6267	
6550	
6973	
7025	7025A, 12AX7, 12AX7A, 12DF7, 12DT7, 12AD7*, 12BZ7*, 12DM7*
7025A	7025, 12AX7, 12AX7A, 12DF7, 12DT7, 12AD7*, 12BZ7*, 12DM7*
7027	7027A
7027A	
7189	7189A
7189A	
7199	
7247	12DW7
7355	
7382	
7408	6V6, 6V6G, 6V6GT, 6V6GTA, 6V6GT/G, 6V6GTX, 6V6GX, 6V6Y
7500	
7534	
7543	6AU6, 6AU6A
7581	7581A, 6L6GC
7581A	
7591	
7687	
7695	
7754	
7867	6EX6*
7868	
9001	
9002	

§ May not work in all circuits. * Parallel-filament circuits.

† Series circuits not requiring controlled warm-up time.

To Replace	Use
9003	
VR75	OA3
VR90	OB3
VR105	OC3
VR150	OD3
XXB	3C6
XXD	14AF7
XXFM	7X7
XXL	7A4
X155	6BC8, 6BQ7, 6BQ7A, 6BS8, 6BX8, 6BZ7, 6BZ8, 6BK7*, 6BK7A*, 6BK7B*

---

§ May not work in all circuits. * Parallel-filament circuits.
† Series circuits not requiring controlled warm-up time.

Section 2

CROSS REFERENCE OF SUBMINIATURE TUBES

This section lists subminiature tubes and recommended substitutes. Tubes are listed in numerical-alphabetical order, with the substitutes shown in the right-hand column.

To use this section, locate the tube type to be replaced in the left-hand column. Then refer to the right-hand column for the substitute. The substitutes are only those tubes which have similar, or improved, characteristics and can be inserted directly into the socket. No rewiring or mechanical changes are needed, although the associated service controls may have to be readjusted. When no substitutes are shown, none are recommended.

Substitutes marked with an asterisk (*) should be used only when the filament of the original tube is wired in a parallel circuit. Those tubes marked with a section symbol (§) may not work in all circuits.

To Replace	Use
1AC5	1V5
1AD4	
1AD5	1W5
1AE5	
1AG4	
1AG5	2E41, 2E42, CK551AXA, 1AJ5*, 1AK5*
1AH4	1AK4*
1AJ5	1AG5*, 1AK5*
1AK4	1AH4*
1AK5	1AG5*, 1AJ5*
1C8	1E8
1D3	SD1066A
1E8	1C8
1Q6	
1S6	1T6
1T2	
1T6	1S6
1V5	1AC5
1V6	
1W5	1AD5
2B5	
2C27	
2C28	
2E27	
2E29	
2E31	2E32, CK553AXA
2E32	2E31, CK553AXA
2E35	2E36, CK502AX
2E36	2E35, CK502AX
2E41	1AG5, 2E42
2E42	1AG5, 2E41
2G21	2G22, CK555AX
2G22	2G21, CK555AX
6AD4	5637, 5719, 5719A, 5898, SD917A
6AK4	

* Parallel-filament circuits. § May not work in all circuits.

To Replace	*Use*
6AZ5	
6AZ6	
6BA5	
6BF7	6BF7A, 6BF7W, 6BG7, 6021, 6021A, 6021WA
6BF7A	6BF7, 6BF7W, 6BG7, 6021, 6021A, 6021WA
6BF7W	6021, 6021A, 6021WA
6BG7	6BF7, 6BF7A, 6BF7W, 6021, 6021A, 6021WA
6K4	6778
6W2	
6X2	6W2*
RK61	
CK501AX	
CK502AX	2E35, 2E36
CK503AX	CK518AX, 5854
CK505AX	
CK506AX	
CK507AX	
CK509AX	CK515BX
CK510AX	
CK511X	
CK512AX	CK574AX, 6281
CK515BX	CK509AX
CK516AX	
CK518AX	CK503AX
CK520AX	
CK521AX	
CK522AX	CK528AX, 6088
CK523AX	
CK524AX	
CK525AX	

* Parallel-filament circuits.

§ May not work in all circuits.

To Replace	*Use*
CK526AX	CK537AX
CK527AX	
CK528AX	CK522AX, 6088
CK529AX	CK535AX
CK531DX	
CK532DX	
CK533AX	CK536AX
CK534AX	
CK535AX	CK529AX
CK536AX	CK533AX
CK537AX	CK526AX
CK538DX	
CK539DX	
CK541DX	
CK542DX	CK542DXS
CK542DXS	CK542DX
CK543DX	
CK544DX	
CK545DX	
CK546DX	6519
CK547DX	
CK548DX	6418
CK549DX	6419
CK551AXA	1AG5
CK553AXA	2E31, 2E32
CK555AX	2G21, 2G22
CK556AX	5676, 6050
CK568AX	5677
CK569AX	5678
CK570AX	5697
CK571AX	5886
CK573AX	6029
CK574AX	CK512AX, 6281
CK600AX	

* Parallel-filament circuits. § May not work in all circuits.

To Replace	*Use*
CK605CX	CK623CX, 5702, 5702WA, 5702WB, 6148, 6540
CK606BX	5704, 5704WA
CK608CX	5703, 5703WA, 5703WB, 6149
CK619CX	5744, 5744WA, 5744WB, 6151
CK623CX	CK605CX, 5702, 5702WA, 5702WB, 6148, 6540
CK628	6247, 6247WA
SD828A	5638
SD828E	5634
SD917A	6AD4, 5637
SN944	5633
SN947	5640
SN947C	5640
SN954	5641, 5641A, 7436*
SN956B	5642
SN957A	5645
SC968B	5987
SN986B	5916
SD989B	5903, 6053
SN1007A	5636, 5636A
CK1036	6436
CK1037	6437, 5950§
CK1038	5841§
CK1039	6438
CK1042	6659
CK1045	6542
CK1050	CK1050A, 7323, 7979
CK1050A	CK1050, 7323, 7979
CK1053	
CK1061	
SD1066A	1D3
CK1068	
CK1069	
CK1089	

* Parallel-filament circuits.

§ May not work in all circuits.

To Replace	*Use*
CK1362	
CK1363	
CK1614	
CK1625	
5633	5634, SN944
5634	5633, SD828E
5635	
5636	5636A
5636A	
5637	5719, 5719A, 5898, SD917A
5638	SD828A
5639	5639A, 5639WA
5639A	5639WA
5639WA	
5640	5902, 5902A, 5902WA, SN947, SN947C
5641	5641A, 7436*
5641A	7436*
5642	SN956B
5643	
5644	5644A
5644A	
5645	SN957A
5646	
5647	5647A
5647A	
5672	
5676	CK556AX, 6050
5677	CK568AX
5678	CK569AX
5694	
5697	CK570AX
5702	5702WA, 5702WB, 6148, CK605CX, CK623CX, 6540
5702WA	5702WB, 6148, 6540
5702WB	

* Parallel-filament circuits. § May not work in all circuits.

To Replace	*Use*
5703	5703WA, 5703WB, 6149, CK608CX
5703WA	5703WB, 6149
5703WB	
5704	5704WA, CK606BX
5704WA	
5718	5718A
5718A	
5719	5719A
5719A	
5744	5744WA, 5744WB, 6151, CK619CX
5744WA	5744WB, 6151
5744WB	
5783	5783WA, 5783WB
5783WA	5783WB
5783WB	
5784	5784WA, 5784WB, 6150
5784WA	5784WB, 6150
5784WB	
5785	
5787	5787WA, 5787WB
5787WA	5787WB
5787WB	
5797	
5798	
5799	
5801	
5802	
5828	
5829	5829WA
5829WA	
5840	5840A
5840A	
5841	CK1038§
5851	6397*
5854	CK503AX

* Parallel-filament circuits.

§ May not work in all circuits.

To Replace	*Use*
5873	
5875	
5884	
5885	
5886	CK571AX
5889	
5896	5896A, 6052
5896A	6052
5897	5718, 5718A
5898	5637, 5719, 5719A
5899	5899A, 5900, 6206, 6206A
5899A	6206, 6206A
5900	5899, 5899A
5901	5840, 5840A
5902	5902A, 5902WA
5902A	5902WA
5902WA	
5903	6053
5904	
5905	
5906	
5907	6056
5908	
5911	6008
5913	6007
5916	
5935	
5947	
5950	CK1037§, 6437§
5967	
5968	
5969	
5970	
5971	
5972	

* Parallel-filament circuits. § May not work in all circuits.

To Replace	*Use*
5975	
5977	5977A
5977A	
5987	
5995	
6007	5913
6008	5911
6021	6021A, 6021WA
6021A	6021WA
6021WA	
6026	
6029	CK573AX
6049	
6050	5676, CK556AX
6051	
6052	5896, 5896A
6053	5903
6055	
6056	5907
6088	CK522AX, CK528AX
6092	
6110	
6111	6111A, 6111WA
6111A	6111WA
6111WA	
6112	6112A, 6112WA
6112A	6112WA
6112WA	
6119	
6121	
6143	
6147	6397
6148	5702WA, 5702WB, 6540
6149	5703WA, 5703WB
6150	5784WA, 5784WB

* Parallel-filament circuits. § May not work in all circuits.

To Replace	Use
6151	5744WA, 5744WB
6152	
6169	
6193	
6195	
6205	6205A
6205A	
6206	6206A
6206A	
6213	
6221	
6222	
6223	6225, 7432
6224	
6225	6223, 7432
6245	
6247	6247WA
6247WA	
6281	
6286	
6308	
6320	6321
6321	6320
6352	
6373	
6375	
6391	7434
6397	6147, 5851*
6418	
6419	
6436	CK1036
6437	CK1037, 5950§
6438	CK1039
6487	
6488	7433

* Parallel-filament circuits. § May not work in all circuits.

To Replace	*Use*
6489	
6519	
6526	
6533	6533WA
6533WA	
6540	5702WA, 5702WB, 6148
6542	
6611	
6612	
6659	CK1042
6690	
6778	
6788	
6814	
6832	
6872	
6943	
6944	
6945	
6946	
6947	
6948	
6977	
7079	
7099	
7246	
7323	
7327	
7401	
7432	
7433	
7434	
7435	
7436	
7437	

* Parallel-filament circuits.

§ May not work in all circuits.

To Replace	Use
7438	
7550	
7759	
7760	
7761	
7762	
7887	
7888	
7889	
7962	
7963	
7979	
7994	
7995	
8064	
8070	
8071	
8103	
8210	

* Parallel-filament circuits. § May not work in all circuits.

Section 3

INDUSTRIAL SUBSTITUTES FOR RECEIVING TUBES

In this section are those American receiving tubes that can be replaced by industrial types. The receiving tubes are listed in the left-hand column and their industrial substitutes in the right-hand column. Each tube listed has one or more substitutes. If a tube type does not appear in the listing, an industrial substitute is not recommended.

This substitution list should be used in one direction only —that is, an industrial type to replace a standard type. If the equipment is already designed for an industrial tube, a standard receiving tube will not usually work as efficiently or as long as the original.

Substitutes marked with an asterisk (*) should be used only when the filament of the original tube is wired in a parallel circuit.

To Replace	*Use*
OA2	OA2WA, 5856, 6073, 6626
OA4G	1267
OB2	OB2WA, 6074, 6627
OC3	OC3W, VR105W
OD3	OD3W, VR150W
OZ4A	1003
1F4	2101
1R4	1294
1R5	1R5WA
1T4	1T4WA
1U4	1U4WA, 5910
1U5	1U5WA
2A3	2A3W, 5930
2A6	1659
2X2	879
3B7	1291
3D6	1299
3V4	3V4WA
5R4GY	5R4WGA, 5R4WGB, 5R4WGY, 5R4WGYA
5U4G	5U4WG, 5U4WGB, 5931
5Y3GT	5Y3WGT, 5Y3WGTA, 5Y3WGTB, 6087, 6106
5Z3	1275
5Z4	6087
6AB4	6664
6AB7	1853
6AC7	6AC7W, 6AC7WA, 6AC7Y, 1852, 6134
6AG5	6AG5WA, 6186
6AG7	6AG7W
6AH6	6AH6WA, 6485
6AK5	6AK5W, 6AK5WA, 6AK5WB, 1220, 5654, 5591*, 6096, 6968
6AL5	6AL5W, 5726, 6058, 6097, 6663, 7631
6AM5	6516
6AM6	6064, 7498
6AN5	6AN5WA

* Parallel-filament circuits.

To Replace	*Use*
6AQ5	6AQ5W, 6005, 6095, 6669
6AR6	6AR6WA, 6098, 6384
6AS6	6AS6W, 5725, 6187*
6AS7G	6AS7GYB, 6080WA, 6080WB, 6520
6AT6	6066
6AU6	6AU6WA, 6AU6WB, 6136
6AV6	6066
6BA6	6BA6W, 6BA6WA, 5749, 6660, 7496
6BE6	6BE6W, 5750, 7502*
6BH6	6265*, 6661
6BJ6	6662, 7694
6BL8	7643*
6BQ5	7320
6BR7	6059
6BW6	6061
6C4	6C4W, 6C4WA, 6100, 6135*
6C6	1221, 1223, 7700
6CB6	6676, 7732
6CH6	6132, 7499
6CL6	2014, 6197, 6297, 6677
6CQ6	6065
6CW4	7895
6CY5	7717
6DB6	6954
6DJ8	6922*
6DK6	8136
6DS4	7895
6F6	1611, 1621
6H6	6H6WGT
6J4	6J4W, 6J4WA
6J5	6J5WGT
6J6	6J6W, 6J6WA, 5964, 6030, 6045*, 6099, 6101, 6927*
6J7	1223, 1620, 7000
6K5	6K5WGT
6K7	5732

---

* Parallel-filament circuits.

To Replace	*Use*
6L6	6L6A, 6L6W, 6L6WA, 6L6WGA, 6L6WGB, 6L6WGT, 1622, 5932
6L7	1612, 1620
6Q7	6118
6SA7	6SA7WGT, 5961
6SC7	6SC7GTY, 1655
6SG7	6006
6SH7	6SH7L
6SJ7	6SJ7W, 6SJ7WGT, 6SJ7WGTY, 5693
6SK7	6SK7W, 6SK7WA, 6SK7WGT, 6137
6SL7	6SL7A, 6SL7L, 6SL7W, 6SL7WGT, 5691*, 6113
6SN7	6SN7A, 6SN7L, 6SN7W, 6SN7WGT, 6SN7WGTA, 5692
6SQ7	6SQ7W
6SU7	6SU7WGT, 6188
6U6	6U6WT
6U8	1252, 6678, 7731
6V6	6V6GTY, 5871
6X4	6X4W, 6X4WA, 6063, 6202
6X5	6X5L, 6X5W, 6X5WGT, 5852*
6Y7G	1635
7AB7	1204
7AJ7	1273
7C4	1203, 1203A
7E5	1201
7F8	7F8W
7G7	1232
7G8	1206
7Y4	1274*
12A6	12A6GTY, 5659
12AT7	12AT7WA, 12AT7WB, 6060, 6201, 6671, 6679, 7492, 7728
12AU7	12AU7W, 12AU7WA, 5814*, 5814A*, 5814WA*, 5963, 6067, 6189, 6680, 7316, 7489, 7730

---

* Parallel-filament circuits.

To Replace	*Use*
12AX7	12AX7WA, 5721, 5751*, 5751WA*, 6057, 6681, 7494, 7729
12AY7	6072*
12BH7	6913
12BY7	7733
12C8	1664, 5660
12J5	12J5WGT
12L6GT	1632*
12L8GT	1644
12SC7	1634
12SK7	5661
12SL7GT	2C52*
14C7	1280
14GT8	7724
25B6G	5824
25L6GT	6046
25W6GT	6046
25Z6	25Z6WGT
26E6G	26E6WG, 26E6WGB
26Z5	26Z5W
28D7	28D7W, 1238
807	807W, 5933, 5933WA

* Parallel-filament circuits.

Section 4

FOREIGN SUBSTITUTES FOR AMERICAN TYPES

This section lists foreign substitutes for American receiving tubes. Refer to this section only after checking for an American substitute in Sections 1 and 3.

American tubes are shown in the left-hand column; foreign equivalents are in the right-hand column. Only those American types which can be replaced with foreign brands have been included. For a list of foreign types with American equivalents, refer to Section 5.

Substitutes marked with an asterisk (*) should be used only when the filament of the original tube is wired in a parallel circuit. Those tubes marked with a section symbol (§) may not work in all circuits.

To Replace	*Use*
OA2	150C2, M8223, STV150/30
OA4G	PL1267, Z300T
OB2	108C1, M8224, STV108/30
OD3	150C3
1A3	1D13, DA90
1A7GT	DK32, X14
1AB6	1C3, 1H35, DK96, X25
1AC6	1C2, DK92, X18, X20
1AD4	DF62
1AH5	1FD1, DAF96, ZD25
1AJ4	1F1, DF96, W25
1AN5	DF97
1B3GT	DY30, U41
1C5GT	DL35, N14
1E3	DC80
1F5G	KL35*
1H5GT	DAC32, HD14
1L4	1F2, DF92
1M3	DM70, DM71, Y25
1N3	DM71, DM70, Y25
1N5GT	DF33, Z14
1Q5GT	DL36
1R5	1C1, DK91, X17
1S2	DY86
1S2A	DY87
1S5	1FD9, DAF91, ZD17
1T2	R16, U37
1T4	1F3, DF91, W17
1U4	DF904
1U5	DAF92
1V6	DCF60
1X2A	DY80, R19
2ER5	XC95
2J2	U26
3A4	DL93

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	*Use*
3C4	1P1, DL96, N25
3D6	DL29
3EH7	XF183
3EJ7	XF184
3Q4	DL95, N18
3Q5GT	DL33, N15, N16
3S4	1P10, DL92, N17
3V4	1P11, DL94, N19
4BL8	XCF80
4BS8	4R-HH2
4CM4	PC86
4EH7	YF183
4EJ7	YF184
4ES8	XCC189
4GK5	PC95
5AR4	GZ34, U77
5AZ4	GZ30
5J6	5M-HH3
5T4	U52
5U4G	U52
5V4G	53KU, 54KU, GZ32, GZ33, U77
5Y3GT	U50
5Z4G	52KU, GZ30, R52, U77
6A6	B63
6A8	PH4, X63
6AB4	EC92
6AB8	63TP, ECL80, LN152
6AC7	6F10, OSW2190, OSW2600
6AD8	EBF81
6AF4	EC94
6AF7G	64ME*, EM34*
6AG5	EF96
6AG7	6L10, OSW2192, OSW2601
6AH6	6F36
6AJ4	EC84

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	*Use*
6AJ8	6C12, 20D4, ECH81, X719
6AK5	DP61, EF95§, PM05§, M8100§
6AK8	6LD12, DH719, EABC80
6AL3	EY88
6AL5	6B32, 6D2, D2M9, D77, D152, D717, DD6, EAA91, EB91, EAA901, EAA901S, M8079, M8212, QA2404
6AM5	6P17, 7D9, DD7, DDR7, EL91, M8082*, N77, N144, QA2402, QN77*
6AM6	6F12, 8D3, EF91, HP6, M8083, PM07, QA2403, QZ77, SP6, Z77
6AN7	ECH80
6AQ4	6L34, EC91, M8099
6AQ5	6L31, BPM04, EL90, M8245, N727*
6AQ8	6L12, B719*, ECC85
6AS6	6F33, M8196
6AS7G	A1834, ECC230
6AT6	DH77, EBC90
6AU4GT	6G-K17
6AU6	EF94
6AV4	6FX4*, EZ91
6AV6	6BC32, EBC91
6B8	EBF32*
6BA6	6F31, EF93, M8101, PM04, W727
6BD7	6LD13, EBC81
6BE6	6H31, EK90, HM04, X77, X727
6BE7	EQ80
6BH5	EF81
6BH6	E90F
6BJ5	N78
6BJ6	E99F
6BL8	ECF80
6BM5	6P9
6BM8	ECL82

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	Use
6BN5	EL85
6BQ5	EL84, N709
6BQ6GT	6G-B6
6BQ7A	ECC180
6BR5	65ME, EM80
6BR7	8D5
6BS7	8D7
6BS8	6R-HH2
6BT4	66KU, EZ40, U150, U718*, UU9*, V61
6BW7	8D6
6BX4	6Z4
6BX6	64SPT, EF80, Z152, Z719
6BY7	6F19, 6F26, EF85, W719
6C4	EC90, L77, M8080, QA2401, QL77
6CA4	EZ81, U709*, UU12
6CA7	EL34, KT77
6CB6	EF190
6CD7	64ME, EM34
6CF6	EF190
6CH6	7D10, EF82, EL821, EL822
6CJ5	6F16, 7F16, 62VP, EF41, HF61, W150§
6CJ6	EL81, EL820
6CK5	67PT, BF61, EL41, N150
6CK6	EL83, EL803§
6CL6	6L43
6CM4	EC86
6CM5	EL36
6CN6	5P29, EL38
6CQ6	6F21, 9D6, EF92, M8161, QA2400, QW77, V884, VP6, W77
6CS6	EH90
6CT7	EAF42, WD150
6CU7	6C9*, 6C10*, 62TH, ECH42, ECH43, X150*
6CV7	6LD3, 62DDT, DH150, DH718, EBC41

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	*Use*
6CW5	EL86
6CW7	ECC84
6D8	X73*
6DA5	EM81
6DA6	EF89
6DC8	6FD12, EBF89
6DG7	EF89F
6DJ8	ECC88, E88CC*
6DL5	EL95
6DQ6A	6G-B9
6DR8	EBF83
6DS8	ECH83
6DT8	6AT7N
6DX8	ECL84
6DY5	EL82
6E5	6S5G, OSW3110
6E8G	ECH35*
6EC7	6F18, W739
6EH7	6F25, EF183
6EJ7	6F24, EF184
6EL7	6F23
6ER5	EC95
6ES6	EF97
6ES8	ECC189
6ET6	EF98
6F5GT	H63
6F6G	KT63
6FC7	ECC89
6FG6	EM84, EM840
6FY5	EC97
6GB5	EL500
6GM8	ECC86
6GW8	ECL86
6H6	D63, EB34*, OSW3109
6HG8	ECF86

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	Use
6HU8	ELL80
6J4	M8232, TM12
6J5	L63, OSW3112
6J6	6CC31, 6M-HH3, ECC91, M8081, T2M05
6J7	A863, EF37*, Z63
6K7	EF39*, OM6*, PF9, W61, W63
6L6	EL37
6L6GC	KT66
6L7	X64
6M5	EL80
6M6G	EL33*, KT61*, N147*
6N3	EY82
6N8	EBF80, WD709, ZD152
6Q7	DH63
6R3	63VP*, EY81
6S2	EY86
6S2A	EY87
6S7	KTW61, OF1
6SA7	OSW3104
6SK7	OSW3111
6SL7	ECC35*
6SN7GT	13D2, B65, ECC32*, QA2408, QB65
6SQ7	OSW3105
6T8	6LD12, DH719, EABC80
6U3	EY80
6U8	ECF82
6V4	EZ80
6V6GT	OSW3106
6W7G	8D4*
6X4	6Z31, EZ90, QA2407*, U78*, U707, V2M70
6X5G	EZ35, U70, U147
7A7	EF22*, W143*, W148
7AN7	30L1, B319, PCC84
7B6	DH81

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	*Use*
7B7	W149
7C6	DH149
7DJ8	PCC88
7ED7	30F5
7EK7	30L15
7FC7	PCC89
7HG8	PCF86
7S7	X81, X148
7Y4	U82*, U149
8B8	8R-HP1
8BQ5	XL84
9A8	8A8, 30C1, LZ319, LZ329, PCF80
9AK8	PABC80
9AQ8	PCC85
9BM5	9P9
9EN7	30C15
9GB8	30PL1
9U8	PCF82
12A8	OH4
12AC5	121VP, HF121, UF41, W142
12AD7	6L13*
12AH8	20D3
12AJ7	HCH81
12AL5	HAA91, UAA91
12AT6	HBC90
12AT7	B152, B309, B739, ECC81, M8162, QA2406, QB309
12AU6	HF94
12AU7	B329, B749, ECC82, M8136
12AV6	12BC32, HBC91
12AX7	6L13, B339, B759, ECC83, M8137
12BA6	12F31, HF93
12BE6	12H31, HK90
12BQ6GT	12G-B6
12BY7	EL180

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	*Use*
12C8	VP12D
12DF7	ECC83
12DT7	ECC83
12FB5	30P12
12HU8	PLL80
12K7	W76
12Q7GT	DH74, DH76
12S7	UAF42§, WD142§
12SN7GT	B36
12SQ7	OBC3
12SX7GT	B36
13CM5	XL36
13EC7	10F18, W119
13GC8	30PL1
14G6	UBC81
14K7	141TH, UCH42, UCH43, X142
14L7	10LD3, 141DDT, DH118, DH142, UBC41
15A6	N153, N309, PL83
15CW5	30P18, PL84
15DQ8	PCL84
16A5	30P16, 163PEN, N154, N329, PL82, PL87
16A8	PCL82
16AQ3	XY88
16GK8	30PL13, 30PL14
17C8	17N8, 171DDP, UBF80
17EW8	HCC85
17Z3	PY81, PY83, U153
18GD6	19M-R9
19AQ5	HL90
19CS4	U191
19D8	10C14, UCH81, X119
19T8	HABC80
19X3	19BD, 19U3, PY80, U152, U309
19Y3	19SU, PY82, U154, U192, U319

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	*Use*
21A6	213PEN, N152, N359, PL81, PL820
25BQ6GT	25G-B6
25E5	N308, PL36
25GF6	30P4
25W6GT	KT32
27GB5	PL500
30A5	HL94
31A3	311SU, U142, UY41, UY42
35W4	HY90
35Z4GT	U76
38A3	U119, U381, UY85
45A5	451PT, BF451, N142, UL41
45B5	10P18, N119, UL84
50BM8	10PL12, UCL82
50C5	HL92
50L6GT	KT71
807	4Y25, 5S1, P17A, QE06/50, QV05-25
5642	DY70
5847	6R-R8C
6080	A1834, ECC230
6267	8D8, 6F22, EF86, M8195, Z729
6550	KT88
7025	B339, B759, ECC83, M8137
7543	EF94
7581	KT66

§ May not work in all circuits. * Parallel-filament circuits.

Section 5

AMERICAN SUBSTITUTES FOR FOREIGN TYPES

This section lists American substitutes for foreign receiving tubes. Foreign tubes are shown in the left-hand column; American equivalents are in the right-hand column. Only those foreign types which can be replaced with American brands have been listed. For a list of foreign equivalents for American types, refer to Section 4.

In most cases, there is only one American replacement shown as a direct equivalent to the foreign type. Other equivalents for the American replacement are listed in Sections 1 and 3. For example, the American replacement for the 6F10 is the 6AC7. If a 6AC7 is not available, Section 1 shows that a 6AJ7 can be used as a substitute. Therefore, the 6AJ7 can be used as a substitute for the 6F10.

Substitutes marked with an asterisk (*) should be used only when the filament of the original tube is wired in a parallel circuit. Those tubes marked with a section symbol (§) may not work in all circuits.

To Replace	Use
1C1	1R5
1C2	1AC6
1C3	1AB6
1D13	1A3
1F1	1AJ4
1F2	1L4
1F3	1T4
1FD1	1AH5
1FD9	1S5
1H35	1AB6
1P1	3C4
1P10	3S4
1P11	3V4
4R-HH2	4BS8
4Y25	807
5M-HH3	5J6
5P29	6CN6
5S1	807
6AT7N	6DT8
6B32	6AL5
6BC32	6AV6
6C9	6CU7*
6C10	6CU7*
6CC31	6J6
6D2	6AL5
6F10	6AC7
6F12	6AM6
6F16	6CJ5
6F18	6EC7
6F19	6BY7
6F21	6CQ6
6F22	6267
6F23	6EL7
6F24	6EJ7
6F25	6EH7
6F26	6BY7
6F31	6BA6
6F33	6AS6
6F36	6AH6
6FD12	6DC8
6G-B3A	6GW6
6G-B6	6BQ6GT
6G-B9	6DQ6A
6G-K17	6AU4GT
6H31	6BE6
6L10	6AG7
6L12	6AQ8
6L13	12AX7
6L31	6AQ5
6L34	6AQ4
6L43	6CL6
6LD3	6CV7
6LD12	6AK8
6LD13	6BD7
6M-HH3	6J6
6P9	6BM5
6P15	6BQ5
6P17	6AM5
6R-HH2	6BS8
6R-R8C	5847
6S5G	6E5
6V3P	6R3*
6Z4	6BX4
6Z31	6X4
7D9	6AM5
7D10	6CH6
7F16	6CJ5
8A8	9A8
8D3	6AM6
8D4	6W7G*
8D5	6BR7
8D6	6BW7
8D7	6BS7
8D8	6267

---

§ May not work in all circuits.

* Parallel-filament circuits.

To Replace	*Use*
8R-HP1	8B8
9D6	6CQ6
9P9	9BM5
10C14	19D8
10F18	13EC7
10LD3	14L7
10P18	45B5
10PL12	50BM8
12BC32	12AV6
12F31	12BA6
12G-B3	12GW6
12G-B6	12BQ6GT
12G-K17	12D4A
12H31	12BE6
13D2	6SN7GT
17N8	17C8
18AK5	6028
19AJ8	19D8
19BD	19X3
19M-R9	18GD6
19SU	19Y3
19U3	19X3
20D3	12AH8
20D4	6AJ8
25G-B6	25BQ6GT
30C1	9A8
30F5	7ED7
30L1	7AN7
30L15	7EK7
30P4	25GF6
30P12	12FB5
30P16	16A5
30P18	15CW5
30P19	25GF6
30PL1	13GC8
30PL13	16GK8
52KU	5Z4G
62DDT	6CV7
62TH	6CU7
62VP	6CJ5
63TP	6AB8
64ME	6CD7
64SPT	6BX6
65ME	6BR5
66KU	6BT4
67PT	6CK5
108C1	OB2
121VP	12AC5
141DDT	14L7
141TH	14K7
150C2	OA2
150C3	OD3
163PEN	16A5
171DDP	17C8
213PEN	21A6
311SU	31A3
451PT	45A5
A863	6J7GT
A1834	6AS7G
AD	6Z3
B36	12SN7GT
B63	6A6
B152	12AT7
B309	12AT7
B319	7AN7
B329	12AU7
B339	12AX7
B719	6AQ8*
B739	12AT7
B749	12AU7
B759	12AX7
BF61	6CK5
BF451	45A5
BPM04	6AQ5

§ May not work in all circuits.

* Parallel-filament circuits.

To Replace	Use
D2M9	6AL5
D61	6CT7§
D63	6H6
D77	6AL5
D152	6AL5
D717	6AL5
DA90	1A3
DAC32	1H5GT
DAF91	1S5
DAF92	1U5
DAF96	1AH5
DC80	1E3
DCF60	1V6
DD6	6AL5
DD7	6AM5
DDR7	6AM5
DF33	1N5GT
DF62	1AD4
DF91	1T4
DF92	1L4
DF96	1AJ4
DF97	1AN5
DF904	1U4
DH63	6Q7
DH74	12Q7GT
DH76	12Q7GT
DH77	6AT6
DH81	7B6
DH118	14L7
DH142	14L7
DH149	7C6
DH150	6CV7
DH718	6CV7
DH719	6AK8
DK32	1A7GT
DK91	1R5
DK92	1AC6
DK96	1AB6
DL29	3D6
DL33	3Q5GT
DL35	1C5GT
DL36	1Q5GT
DL92	3S4
DL93	3A4
DL94	3V4
DL95	3Q4
DL96	3C4
DM70	1M3
DM71	1N3
DP61	6AK5
DY30	1B3GT
DY70	5642
DY80	1X2A
DY86	1S2
DY87	1S2A
EAA91	6AL5
EABC80	6AK8
EAF42	6CT7
EB34	6H6*
EB91	6AL5
EBC41	6CV7
EBC80	6BD7
EBC90	6AT6
EBC91	6AV6
EBF32	6B8*
EBF80	6N8
EBF81	6AD8
EBF83	6DR8
EBF89	6DC8
EC84	6AJ4
EC86	6CM4
EC90	6C4
EC91	6AQ4
EC92	6AB4

---

§ May not work in all circuits.

* Parallel-filament circuits.

To Replace	Use
EC94	6AF4
EC95	6ER5
EC97	6FY5
ECC32	6SN7GT*
ECC35	6SL7*
ECC81	12AT7
ECC82	12AU7
ECC83	12AX7
ECC84	6CW7
ECC85	6AQ8
ECC86	6GM8
ECC88	6DJ8
ECC89	6FC7
ECC91	6J6
ECC180	6BQ7A
ECC189	6ES8
ECC230	6080
ECF80	6BL8
ECF82	6U8
ECF86	6HG8
ECH35	6E8G*
ECH42	6CU7
ECH80	6AN7
ECH81	6AJ8
ECH83	6DS8
ECL80	6AB8
ECL82	6BM8
ECL84	6DX8
ECL86	6GW8
EF22	7A7*
EF37	6J7GT*
EF39	6K7*
EF41	6CJ5
EF80	6BX6
EF81	6BH5
EF82	6CH6
EF85	6BY7
EF86	6267
EF89	6DA6
EF89F	6DG7
EF91	6AM6
EF92	6CQ6
EF93	6BA6
EF94	6AU6
EF95	6AK5
EF96	6AG5
EF97	6ES6
EF98	6ET6
EF183	6EH7
EF184	6EJ7
EF190	6CB6
EH90	6CS6
EK90	6BE6
EL33	6M6G*
EL34	6CA7
EL36	6CM5
EL37	6L6
EL38	6CN6
EL41	6CK5
EL80	6M5
EL81	6CJ6
EL82	6DY5
EL83	6CK6
EL84	6BQ5
EL85	6BN5
EL86	6CW5
EL90	6AQ5
EL91	6AM5
EL95	6DL5
EL180	12BY7
EL500	6GB5
EL803	6CK6§
EL821	6CH6
EL822	6CH6

§ May not work in all circuits. * Parallel-filament circuits.

To Replace	Use
ELL80	6HU8
EM34	6CD7
EM80	6BR5
EM81	6DA5
EM84	6FG6
EM840	6FG6
EQ80	6BE7
EY80	6U3
EY81	6R3
EY82	6N3
EY86	6S2
EY87	6S2A
EY88	6AL3
EZ35	6X5G
EZ40	6BT4
EZ80	6V4
EZ81	6CA4
EZ90	6X4
EZ91	6AV4
GZ30	5AZ4
GZ34	5AR4
H63	6F5GT
HAA91	12AL5
HABC80	19T8
HBC90	12AT6
HBC91	12AV6
HCC85	17EW8
HCH81	12AJ7
HD14	1H5GT
HF61	6CJ5
HF93	12BA6
HF94	12AU6
HF121	12AC5
HK90	12BE6
HL90	19AQ5
HL92	50C5
HL94	30A5

To Replace	Use
HM04	6BE6
HP6	6AM6
HY90	35W4
KL35	1F5G*
KT32	25W6GT
KT61	6M6G*
KT63	6F6G
KT66	6L6GC
KT71	50L6GT
KT77	6CA7
KT88	6550
KTW61	6S7
L63	6J5
L77	6C4
LN152	6AB8
LZ319	9A8
LZ329	9A8
N14	1C5GT
N15	3Q5GT
N16	3Q5GT
N17	3S4
N18	3Q4
N19	3V4
N25	3C4
N77	6AM5
N78	6BJ5
N119	45B5
N142	45A5
N144	6AM5
N147	6M6G*
N150	6CK5
N152	21A6
N153	15A6
N154	16A5
N308	25E5
N309	15A6
N329	16A5

§ May not work in all circuits.

* Parallel-filament circuits.

To Replace	Use
N359	21A6
N709	6BQ5
N727	6AQ5*
OBC3	12SQ7
OF1	6S7
OH4	12A8
OM6	6K7*
OSW2190	6AC7
OSW2192	6AG7
OSW2600	6AC7
OSW2601	6AG7
OSW3104	6SA7
OSW3105	6SQ7
OSW3106	6V6GT
OSW3109	6H6
OSW3110	6E5
OSW3111	6SK7
OSW3112	6J5
P17A	807
PABC80	9AK8
PC86	4CM4
PC95	4GK5
PCC84	7AN7
PCC85	9AQ8
PCC88	7DJ8
PCC89	7FC7
PCF80	9A8
PCF82	9U8
PCF86	7HG8
PCL82	16A8
PCL84	15DQ8
PF9	6K7
PH4	6A8
PL36	25E5
PL81	21A6
PL82	16A5
PL83	15A6

To Replace	Use
PL84	15CW5
PL500	27GB5
PL820	21A6
PL1267	OA4G
PLL80	12HU8
PM04	6BA6
PM07	6AM6
PY80	19X3
PY81	17Z3
PY82	19Y3
PY83	17Z3
QB65	6SN7GT
QB309	12AT7
QE06/50	807
QL77	6C4
QN77	6AM5*
QV05-25	807
QW77	6CQ6
QZ77	6AM6
R16	1T2
R19	1X2A
R52	5Z4G
SP6	6AM6
STV108/30	OB2
STV150/30	OA2
T2M05	6J6
TM12	6J4
U26	2J2
U37	1T2
U41	1B3GT
U50	5Y3GT
U52	5U4G
U70	6X5G
U76	35Z4GT
U78	6X4*
U82	7Y4*
U119	38A3

§ May not work in all circuits.　　* Parallel-filament circuits.

To Replace	*Use*
U142	31A3
U147	6X5G
U149	7Y4
U150	6BT4
U152	19X3
U153	17Z3
U154	19Y3
U192	19Y3
U309	19X3
U319	19Y3
U381	38A3
U707	6X4
U709	6CA4*
U718	6BT4*
UAA91	12AL5
UAF42	12S7
UBC41	14L7
UBC81	14G6
UBF80	17C8
UCH42	14K7
UCH81	19D8
UCL82	50BM8
UF41	12AC5
UL41	45A5
UL84	45B5
UU9	6BT4*
UU12	6CA4
UY41	31A3
UY42	31A3
UY85	38A3
UY89	38A3
V2M70	6X4
V61	6BT4
V884	6CQ6
VP6	6CQ6
VP12D	12C8
W17	1T4
W25	1AJ4
W61	6K7
W63	6K7
W76	12K7
W77	6CQ6
W119	13EC7
W142	12AC5
W143	7A7*
W148	7A7
W149	7B7
W719	6BY7
W727	6BA6
W739	6EC7
WD142	12S7
WD150	6CT7
WD709	6N8
X14	1A7GT
X17	1R5
X18	1AC6
X20	1AC6
X25	1AB6
X63	6A8
X64	6L7
X73	6D8*
X77	6BE6
X81	7S7
X119	19D8
X142	14K7
X148	7S7
X150	6CU7*
X719	6AJ8
X727	6BE6
XC95	2ER5
XCC189	4ES8
XCF80	4BL8
XF183	3EH7
XF184	3EJ7

§ May not work in all circuits.

* Parallel-filament circuits.

To Replace	Use
XL36	13CM5
XL84	8BQ5
XY88	16AQ3
Y25	1M3
YF183	4EH7
YF184	4EJ7
Z14	1N5GT
Z63	6J7
Z77	6AM6
Z152	6BX6
Z300T	OA4G
Z719	6BX6
Z729	6267
ZD17	1S5
ZD25	1AH5
ZD152	6N8

---

§ May not work in all circuits.

* Parallel-filament circuits.

Section 6

PICTURE-TUBE SUBSTITUTES

This section lists all picture tubes, from the 7- to the 30-inch sizes. This listing is numerical-alphabetical, with the substitutes shown in the right-hand column. Substitutes are not recommended for some types and, for this reason, are not shown in many instances. The listing of a certain tube type as a substitute for another one does not necessarily mean the reverse is true. Always refer to the left-hand column for the original type number. Then find the substitute in the right-hand column.

Minor changes may be necessary when a picture tube is substituted. These changes are indicated by various symbols following the type number. The key to these symbols is given below. *Be absolutely certain* to refer to this key.

At the end of this section is a listing of those tubes that require odd filament voltages (other than 6.3 volts), or low E_{g2} potentials. This is a handy reference when setting up your picture-tube testing and rejuvenating equipment.

Key to Footnotes:

* Omit ion trap.
** Add ion trap.
† If G_1 lead is to pin 2.
‡ If G_1 lead is to pin 6.
# Connect pin 6 to pin 2 or pin 10.
[1] Parallel-filament circuits only.
[2] Mechanical changes may be required.
[3] A change of accelerator-grid voltage may be required.
[4] A change of focusing voltage may be required.
[5] A change of brightness-control voltage may be required.
[6] Add high-voltage filter capacitor.
[7] Ground the *Aquadag* coating.
[8] Change the anode connector.
[9] Change the ion trap.

To Replace	Use
7RP4	7RP4A
7RP4A	7RP4
8AP4	8AP4A
8AP4A	8AP4
9QP4	9QP4A
9QP4A	9QP4
10ABP4	10ABP4A, 10ABP4B, 10ABP4C, 10AEP4[1]
10ABP4A	10ABP4, 10ABP4B, 10ABP4C, 10AEP4[1]
10ABP4B	10ABP4, 10ABP4A, 10ABP4C, 10AEP4[1]
10ABP4C	10ABP4, 10ABP4A, 10ABP4B, 10AEP4[1]
10ADP4	
10AEP4	10ABP4[1], 10ABP4A[1], 10ABP4B[1], 10ABP4C[1]
10BP4	10BP4A, 10BP4C[9], 10BP4D[9], 10FP4*, A*
10BP4A	10BP4, 10BP4C[9], 10BP4D[9], 10FP4*, A*
10BP4C	10BP4D, 10BP4[9], 10BP4A[9], 10FP4*, A*
10BP4D	10BP4C, 10BP4[9], 10BP4A[9], 10FP4*, A*
10CP4	
10DP4	
10EP4	10BP4A[8], 10CP4*, 10FP4*[8], A*[8]
10FP4	10FP4A, 10BP4**, 10BP4A**, 10BP4C**, 10BD4D**
10FP4A	10FP4, 10BP4**, 10BP4A**, 10BP4C**, 10BP4D**
10HP4	
10MP4	10MP4A
10MP4A	10MP4
10RP4	
12AP4	
12CP4	
12JP4	12RP4**, 12QP4**, 12QP4A**
12KP4	12KP4A, 12JP4[6,8], 12ZP4**, 12ZP4A**
12KP4A	12KP4, 12JP4[6,8], 12ZP4**, 12ZP4A**

To Replace	*Use*
12LP4	12LP4A, 12LP4C, 12TP4[6], 12KP4*, 12KP4A*, 12ZP4[9], 12ZP4A[9]
12LP4A	12LP4, 12LP4C, 12KP4*, 12KP4A*, 12TP4[6], 12ZP4[9], 12ZP4A[9]
12LP4C	12LP4, 12LP4A, 12KP4*, 12KP4A*, 12TP4[6], 12ZP4[9], 12ZP4A[9]
12QP4	12QP4A, 12RP4, 12JP4*
12QP4A	12QP4, 12RP4, 12JP4*
12RP4	12QP4, 12QP4A, 12JP4*
12TP4	12LP4[7], 12LP4A[7], 12LP4C[7]
12UP4	12UP4A, 12UP4B[9]
12UP4A	12UP4, 12UP4B[9]
12UP4B	12UP4[9], 12UP4A[9]
12VP4	12VP4A
12VP4A	12VP4
12WP4	
12XP4	12ZP4, 12ZP4A, 12KP4*[1], A*[1]
12YP4	
12ZP4	12ZP4A, 12JP4[6,8], 12KP4*, 12KP4A*
12ZP4A	12ZP4, 12JP4[6,8], 12KP4*, 12KP4A*
14ACP4	14AEP4*, 14ARP4*[3,5]
14AEP4	
14AJP4	14ASP4*, 14AVP4*
14ARP4	14AEP4[3,5], 14AUP4[1], 14AWP4[1]
14ASP4	14AVP4
14ATP4	
14AUP4	14AWP4, 14ARP4[1]
14AVP4	14ASP4
14AWP4	14AUP4, 14ARP4[1]
14BP4	14BP4A, 14CP4, 14CP4A, 14EP4, 14DP4[6,9], 14UP4*[6]
14BP4A	14BP4, 14CP4, 14CP4A, 14EP4, 14DP4[6,9], 14UP4*[6]
14CP4	14CP4A, 14BP4, 14BP4A, 14EP4, 14DP4[6,9], 14UP4*[6]
14CP4A	14CP4, 14BP4, 14BP4A, 14EP4, 14DP4[6,9], 14UP4*[6]

To Replace	*Use*
14DP4	14UP4*, 14CP4[7,9], 14CP4A[7,9], 14EP4[7,9], 14FP4[9]
14EP4	14BP4, 14BP4A, 14CP4, 14CP4A, 14DP4[6,9], 14UP4*[6]
14FP4	14UP4*, 14CP4[7], A[7], 14DP4[9], 14EP4[7]
14GP4	
14HP4	
14KP4	14KP4A, 14BP4[1,8], A[1,8], 14CP4[1,8], A[1,8], 14EP4[1,8]
14KP4A	14CP4[1,8], A[1,8], 14EP4[1,8]
14NP4	14NP4, 14SP4, 14WP4*, 14ZP4*, 14XP4[1], A[1]
14NP4A	14NP4, 14SP4, 14WP4*, 14ZP4*, 14XP4[1], A[1]
14QP4	14QP4A, 14HP4
14QP4A	14QP4, 14HP4
14RP4	14RP4A, 14NP4, 14NP4A, 14SP4, 14WP4*, 14ZP4*, 14XP4[1], A[1]
14RP4A	14RP4, 14NP4, 14NP4A, 14SP4, 14WP4*, 14ZP4*, 14XP4[1], A[1]
14SP4	14NP4, 14NP4A, 14WP4*, 14ZP4*, 14XP4[1], A[1]
14UP4	14FP4**, 14CP4**[7], 14CP4A**[7], 14DP4**, 14EP4**[7]
14WP4	14ZP4
14XP4	14XP4A, 14NP4[1], A[1], 14SP4[1], 14WP4*[1], 14ZP4*[1]
14XP4A	14XP4, 14NP4[1], A[1] 14SP4[1], 14WP4*[1], 14ZP4*[1]
14ZP4	14WP4
15AP4	15DP4**, A**
15CP4	15AP4*, 15DP4[9], A[9]
15DP4	15DP4A, 15AP4*
15DP4A	15DP4, 15AP4*
15EP4	
15GP22	
15HP22	

To Replace	*Use*
16ABP4	16AEP4#
16ACP4	
16AEP4	16ABP4
16AFP4	
16AP4	16AP4A, 16AP4B
16AP4A	16AP4, 16AP4B
16AP4B	16AP4, 16AP4A
16CP4	
16DP4	16DP4A
16DP4A	16DP4
16EP4	16EP4A, 16EP4B
16EP4A	16EP4, 16EP4B
16EP4B	16EP4, 16EP4A
16FP4	
16GP4	16GP4A, 16GP4B, 16GP4C
16GP4A	16GP4, 16GP4B, 16GP4C
16GP4B	16GP4, 16GP4A, 16GP4C
16GP4C	16GP4, 16GP4A, 16GP4B
16HP4	16HP4A
16HP4A	16HP4
16JP4	16JP4A, 16HP4, 16HP4A
16JP4A	16JP4, 16HP4, 16HP4A
16KP4	16KP4A, 16RP4, 16RP4A
16KP4A	16KP4, 16RP4, 16RP4A
16LP4	16LP4A, 16ZP4, 16CP4[6]
16LP4A	16LP4, 16ZP4, 16CP4[6]
16MP4	16MP4A, 16JP4, A, 16HP4, A
16MP4A	16MP4, 16JP4, A, 16HP4, A
16QP4	16XP4, 16KP4[7,9], A[7,9], 16RP4[7,9], A[7,9], 16UP4[9]
16RP4	16RP4A, 16KP4, 16KP4A
16RP4A	16RP4, 16KP4, 16KP4A
16SP4	16SP4A, 16VP4[6,9], 16WP4[6], A, B, 16YP4[9]
16SP4A	16SP4, 16VP4[6,9], 16WP4[6], A, B, 16YP4[9]
16TP4	16UP4[5,6]
16UP4	16KP4[7], A[7], 16RP4[7], A[7], 16TP4[5,7], 16XP4[9]

To Replace	*Use*
16VP4	16SP4[7,9], A[7,9], 16WP4[9], A[7,9], B[7,9], 16YP4[7]
16WP4	16WP4A[7], B[7], 16SP4[7], A[7], 16VP4[9] 16YP4[7,9]
16WP4A	16WP4[6], B, 16VP4[6,9]
16WP4B	16WP4[6], A, 16VP4[6,9]
16XP4	16QP4, 16KP4[7,9], A[7,9], 16RP4[7,9], A[7,9], 16TP4[7,9], 16UP4[9]
16YP4	16WP4[6,9], A[9], B[9], 16SP4[9], A[9], 16VP4[6]
16ZP4	16CP4[6]
17AP4	
17ASP4	17AP4[1,8], 17BP4A[1,8], 17BP4B[1,8], 17BP4C[1,8]
17ATP4	17ATP4A, 17AVP4, A, 17BUP4, 17CBP4, 17CLP4, 17BJP4*, 17BKP4[1], A[1], 17DCP4*, 17DJP4[1]
17ATP4A	17ATP4, 17AVP4, A, 17BUP4, 17CBP4, 17CLP4, 17BJP4*, 17BKP4[1], A[1], 17DCP4*, 17DJP4[1]
17AVP4	17AVP4A, 17ATP4, A, 17BUP4, 17CBP4, 17CLP4, 17BJP4*, 17BKP4[1], A[1], 17DCP4*, 17DJP4[1]
17AVP4A	17AVP4, 17ATP4, A, 17BUP4, 17CBP4, 17CLP4, 17BJP4*, 17BKP4[1], A[1], 17DCP4*, 17DPJ4[1]
17BJP4	17CZP4, 17BSP4[1], 17CUP4[1], 17DCP4[1]
17BKP4	17BKP4A, 17ATP4[1], A[1], 17AVP4[1], A[1], 17BJP4*[1], 17BSP4*[1], 17BUP4[1], 17CBP4[1], 17CLP4[1], 17CUP4*[1], 17DCP4*[1], 17DJP4[1]
17BKP4A	17BKP4, 17ATP4[1], A[1], 17AVP4[1], A[1], 17BJP4*[1], 17BSP4*[1], 17BUP4[1], 17CBP4[1], 17CLP4[1], 17CUP4*[1], 17DCP4*[1], 17DJP4[1]
17BMP4	17BNP4*
17BNP4	
17BP4	17BP4A[7], 17BP4B[7], 17BP4C[7], 17JP4[7], 17AP4[7]

To Replace	*Use*
17BP4A	17BP4[6], 17BP4B, 17BP4C, 17JP4, 17AP4
17BP4B	17BP4[6], 17BP4A, 17BP4C, 17JP4, 17AP4
17BP4C	17BP4[6], 17BP4A, 17BP4B, 17JP4, 17AP4
17BRP4	17BZP4*[1], 17CAP4*[1], 17CKP4*, 17CTP4*[1], 17CVP4*[1], 17CWP4*[1], 17DSP4*
17BSP4	17BJP4[1], 17CUP4[1], 17DCP4[1]
17BTP4	
17BUP4	17CBP4
17BVP4	17BWP4*, 17BYP4*[1], 17CSP4*
17BWP4	17CSP4, 17BYP4[1]
17BYP4	17BWP4[1], 17CSP4[1]
17BZP4	17CAP4, 17CKP4, 17CWP4, 17DSP4, 17BRP4**, 17CTP4[1], 17CVP4[1], 17DHP4[1], 17EBP4[1]
17CAP4	17BZP4, 17CKP4, 17CWP4, 17DSP4, 17BRP4**, 17CTP4[1], 17CVP4[1], 17DHP4[1], 17EBP4[1]
17CBP4	17BUP4
17CDP4	
17CEP4	17CFP4[1], 17CYP4[1]
17CFP4	17CYP4, 17CEP4[1]
17CGP4	
17CKP4	17DSP4, 17BRP4**, 17BZP4[1], 17CAP4[1], 17CTP4[1], 17CVP4[1], 17CWP4[1], 17DHP4[1], 17EBP4[1]
17CLP4	17ATP4, A, 17AVP4, A, 17BUP4, 17CBP4, 17BJP4*, 17BKP4[1], A[1], 17BSP4*[1], 17CUP4*[1], 17DCP4*[1], 17DJP4[1]
17CMP4	17BNP4[1,3], 17CXP4[1]
17CNP4	
17CP4	17CP4A
17CP4A	17CP4
17CRP4	17CXP4, 17BNP4[1,3], 17CMP4[1]
17CSP4	17BWP4, 17BYP4[1]

To Replace	*Use*
17CTP4	17DHP4, 17EBP4, 17BRP4**[1], 17BZP4[1], 17CAP4[1], 17CKP4[1], 17CVP4[1], 17CWP4[1]
17CUP4	17DCP4, 17BJP4[1], 17BSP4[1]
17CVP4	17BRP4**[1], 17BZP4[1], 17CAP4[1], 17CKP4[1], 17CWP4[1], 17DSP4[1]
17CWP4	17DSP4, 17DTP4, 17DHP4[1], 17DZP4[1], 17EBP4[1]
17CXP4	17CRP4, 17BNP4[1,3], 17CMP4[1]
17CYP4	17CFP4, 17CEP4[1]
17CZP4	
17DAP4	17DRP4
17DBP4	17DWP4*[1], 17HP4[1], A[1], B[1], 17KP4[1], A[1], 17RP4[1], C[1]
17DCP4	17CUP4, 17BJP4[1], 17BSP4[1], 17CZP4[1]
17DEP4	
17DHP4	17EBP4, 17CWP4[1], 17DSP4[1], 17DTP4[1], 17DZP4[1]
17DJP4	17ATP4[1], A[1], 17AVP4[1], A[1], 17BJP4*[1], 17BKP4[1], A[1], 17BSP4*[1], 17BUP4[1], 17CBP4, 17CLP4[1], 17CUP4*, 17DCP4*
17DKP4	
17DLP4	17DSP4, 17EBP4[1]
17DQP4	
17DRP4	17DAP4
17DSP4	17EBP4[1]
17DTP4	17DZP4[1]
17DWP4	
17DXP4	17DKP4[1], 17DTP4[1], 17DZP4[1]
17DZP4	17DTP4[1]
17EAP4	
17EBP4	17DSP4[1]
17FP4	17FP4A
17FP4A	17FP4
17GP4	
17HP4	17HP4A, B, 17KP4, A, 17RP4, C, 17DBP4[1], 17DWP4*

To Replace	*Use*
17HP4A	17HP4, B, 17KP4, A, 17RP4, C, 17DBP4[1], 17DWP4*
17HP4B	17HP4, A, 17KP4, A, 17RP4, C 17DBP4[1], 17DWP4*
17JP4	17BP4[6], 17BP4A, 17BP4B, 17BP4C, 17AP4
17KP4	17KP4A, 17HP4#, A#, B#, 17RP4#, C#, 17DBP4#[1], 17DWP4#*
17KP4A	17KP4, 17HP4#, A#, B#, 17RP4#, C#, 17DBP4#[1], 17DWP4*#
17LP4	17LP4A, 17VP4, 17VP4B
17LP4A	17LP4, 17VP4, 17VP4B
17QCP4	
17QP4	17QP4A, 17YP4
17QP4A	17QP4, 17YP4
17RP4	17RP4C, 17HP4, A, B, 17KP4, A, 17DBP4[1], 17DWP4*
17RP4C	17RP4, 17HP4, A, B, 17KP4, A, 17DBP4[1], 17DWP4*
17SP4	17LP4#, A#, 17VP4#, B#
17TP4	
17UP4	17QP4, 17QP4A, 17YP4
17VP4	17VP4B, 17LP4, 17LP4A
17VP4B	17VP4, 17LP4, 17LP4A
17YP4	17QP4A
19ABP4	
19ACP4	19CHP4, 19CKP4
19AEP4	
19AFP4	19AUP4, 19BAP4[1], 19BCP4[1], 19CEP4[1]
19AHP4	
19AJP4	19CDP4[1]
19ALP4	19BVP4[1], 19BWP4[1]
19ANP4	19BTP4[1], 19YP4[1]
19AP4	19AP4A, 19AP4B, 19AP4C, 19AP4D
19AP4A	19AP4, 19AP4B, 19AP4C, 19AP4D
19AP4B	19AP4, 19AP4A, 19AP4C, 19AP4D
19AP4C	19AP4, 19AP4A, 19AP4B, 19AP4D

To Replace	Use
19AP4D	19AP4, 19AP4A, 19AP4B, 19AP4C
19AQP4	19AVP4[1], 19AXP4[1], 19AYP4[1], 19BHP4[1], 19BLP4[1], 19XP4[1], 19ZP4[1,‡]
19ARP4	19ASP4[1]
19ASP4	19ARP4[1]
19ATP4	
19AUP4	19AFP4, 19BAP4[1], 19BCP4[1], 19CEP4[1]
19AVP4	19AYP4[1], 19BHP4[1]
19AXP4	19AYP4, 19AQP4[1], 19AVP4[1], 19BHP4[1], 19BLP4[1], 19XP4[1], 19ZP4[1,‡]
19AYP4	19AVP4[1], 19BHP4[1]
19BAP4	19BCP4, 19CEP4, 19AFP4[1], 19AUP4[1]
19BCP4	19BAP4, 19CEP4, 19AFP4[1], 19AUP4[1]
19BDP4	
19BEP4	
19BFP4	
19BHP4	19AVP4, 19AYP4[1]
19BLP4	19AVP4, 19BHP4, 19XP4, 19AQP4[1], 19AXP4[1], 19AYP4[1], 19ZP4[‡]
19BMP4	
19BNP4	19BQP4
19BQP4	19BNP4
19BRP4	
19BTP4	
19BVP4	19BWP4[1]
19BWP4	19BVP4[1]
19CAP4	
19CDP4	19AJP4[1]
19CEP4	19AFP4[1], 19AUP4[1], 19BAP4[1], 19BCP4[1]
19CFP4	19CHP4, 19CKP4
19CGP4	
19CHP4	19CKP4
19CKP4	19CHP4
19CLP4	19BDP4
19DP4	19DP4A, 19FP4[6], 19GP4[6]
19DP4A	19DP4, 19FP4[6], 19GP4[6]
19EP4	19JP4

To Replace	*Use*
19FP4	19GP4, 19DP4[7], A[7]
19GP4	19DP4[7], A[7], 19FP4[9]
19JP4	19EP4
19QP4	
19TP22	
19VP22	
19XP4	19AVP4, 19AQP4[1], 19AXP4[1], 19AYP4[1], 19BHP4[1], 19BLP4[1], 19ZP4[1,‡]
19YP4	19BTP4, 19ANP4[1]
19ZP4	19AVP4, 19BLP4, 19XP4, 19AQP4[1], 19AXP4[1], 19AYP4[1]
20BP4	
20CP4	20CP4B, 20CP4C, 20DP4, 20DP4B, 20CP4A[7], 20CP4D[7], 20DP4A[7], C[7]
20CP4A	20CP4D, 20DP4A, 20DP4C, 20CP4[6], 20CP4B[6], 20CP4C[6], 20DP4[6], 20DP4B[6]
20CP4B	20CP4, 20CP4C, 20DP4, 20DP4B, 20CP4A[7], 20CP4D[7], 20DP4A[7], C[7]
20CP4C	20CP4, 20CP4B, 20DP4, 20DP4B, 20CP4A[7], 20CP4D[7], 20DP4A[7], C[7]
20CP4D	20CP4A, 20DP4A, 20DP4C, 20CP4[6], 20CP4B[6], 20CP4C[6], 20DP4[6], 20DP4B[6]
20DP4	20DP4B, 20CP4, 20CP4B, 20CP4C, 20DP4A[7], 20DP4C[7], 20CP4A[7], D[7]
20DP4A	20DP4C, 20CP4A, 20CP4D, 20DP4[6], 20DP4B[6], 20CP4[6], 20CP4B[6], 20CP4C[6]
20DP4B	20DP4, 20CP4, 20CP4B, 20CP4C, 20DP4A[7], 20DP4C[7], 20CP4A[7], D[7]
20DP4C	20DP4A, 20CP4A, 20CP4D, 20DP4[6], 20DP4B[6], 20CP4[6], 20CP4B[6], 20CP4C[6]
20FP4	20GP4[7]
20GP4	20FP4[6]
20HP4	20HP4B, 20HP4C, 20HP4A[7], 20HP4D[7], 20JP4[7], 20LP4[7], 20MP4[7]
20HP4A	20HP4D, 20LP4, 20MP4, 20JP4, 20HP4[6], 20HP4B[6], 20HP4C[6]

To Replace	*Use*
20HP4B	20HP4, 20HP4C, 20HP4A[7], 20HP4D[7], 20JP4[7], 20LP4[7], 20MP4[7]
20HP4C	20HP4, 20HP4B, 20HP4A[7], 20HP4D[7], 20JP4[7], 20LP4[7], 20MP4[7]
20HP4D	20HP4A, 20JP4, 20LP4, 20MP4, 20HP4[6], 20HP4B[6], 20HP4C[6]
20JP4	20HP4#[7], A#, B#[7], C#[7], D#, 20LP4#, 20MP4#
20LP4	20HP4A, 20HP4D, 20JP4, 20MP4, 20HP4[6], 20HP4B[6], 20HP4C[6]
20MP4	20HP4A, 20HP4D, 20JP4, 20LP4, 20HP4[6], 20HP4B[6], 20HP4C[6]
21ACP4	21ACP4A, 21BSP4, 21CUP4
21ACP4A	21ACP4, 21BSP4, 21CUP4
21AFP4	21BCP4*[7], 21YP4[7], 21YP4A[7]
21ALP4	21ALP4A, B, 21ATP4, A, B, 21BTP4, 21CWP4, 21ANP4[6], A[6], 21BAP4*, 21BNP4*, 21CDP4[1], A[1], 21CVP4*, 21DVP4[1]
21ALP4A	21ALP4, B, 21ATP4, A, B, 21BTP4, 21CWP4, 21ANP4[6], A[6], 21BAP4*, 21BNP4*, 21CDP4[1], A[1], 21CVP4*, 21DVP4[1]
21ALP4B	21ATP4A, B, 21BTP4, 21BAP4*, 21BNP4*, 21CDP4[1], A[1], 21CVP4*, 21DVP4[1]
21AMP4	21AMP4A, 21ACP4, 21ACP4A, 21BSP4, 21CUP4, 21AQP4[6], A[6]
21AMP4A	21AMP4, 21ACP4, 21ACP4A, 21BSP4, 21CUP4, 21AQP4[6], A[6]
21ANP4	21ANP4A, 21ALP4[7], A[7], B[7], 21ATP4[7], A[7], B[7], 21BAP4*[7], 21BNP4*[7], 21BTP4[7], 21CDP4[1,7], A[1,7], 21CVP4*[7], 21CWP4[7], 21DVP4[1,7]
21ANP4A	21ANP4, 21ALP4[7], A[7], B[7], 21ATP4[7], A[7], B[7], 21BAP4*[7], 21BNP4*[7], 21BTP4[7], 21CDP4[1,7], A[1,7], 21CVP4*[7], 21CWP4[7], 21DVP4[1,7]

To Replace	*Use*
21AP4	
21AQP4	21AQP4A, 21ACP4[7], A[7], 21AMP4[7], A[7], 21BSP4[7], 21CUP4[7]
21AQP4A	21AQP4, 21ACP4[7], A[7], 21AMP4[7], A[7], 21BSP4[7], 21CUP4[7]
21ARP4	21ARP4A
21ARP4A	21ARP4
21ASP4	21AYP4[7], 21XP4[7], A[7]
21ATP4	21ATP4A, B, 21ALP4, A, B, 21BTP4, 21CWP4, 21ANP4[6], A[6], 21BAP4*, 21BNP4*, 21CDP4[1], A[1], 21CVP4*, 21DVP4[1]
21ATP4A	21ATP4B, 21ALP4B, 21BTP4, 21BAP4*, 21BNP4*, 21CDP4[1], A[1], 21CVP4*, 21DVP4[1]
21ATP4B	21ATP4A, 21ALP4A, B, 21BTP4, 21CWP4, 21ANP4[6], A[6], 21BAP4*, 21BNP4*, 21CDP4[1], A[1], 21CVP4*, 21DVP4[1]
21AUP4	21AUP4A, 21AUP4B, 21AVP4, A, B, 21BDP4*
21AUP4A	21AUP4, 21AUP4B, 21AVP4, A, B, 21BDP4*
21AUP4B	21AUP4, 21AUP4A, 21AVP4, A, B, 21BDP4*
21AVP4	21AVP4A, 21AVP4B, 21AUP4, 21AUP4A, 21AUP4B, 21BDP4*
21AVP4A	21AVP4, 21AVP4B, 21AUP4, A, B, 21BDP4*
21AVP4B	21AVP4, A, 21AUP4, 21AUP4A, B, 21BDP4*
21AWP4	21ZP4[6], A, B
21AXP22	
21AXP22A	
21AYP4	21XP4, A, 21ASP4[6]

To Replace	*Use*
21BAP4	21BNP4, 21CVP4, 21ALP4B**, 21ATP4A**, 21BTP4**, 21CDP4**[1], A**[1], 21CWP4**, 21DVP4**[1]
21BCP4	
21BDP4	21AUP4A**, B**, 21AVP4A**, B**
21BNP4	21BAP4, 21CVP4, 21ALP4B**, 21ATP4A**, 21BTP4**, 21CDP4**[1], A**[1], 21CWP4**, 21DVP4**[1]
21BRP4	
21BSP4	21ACP4, 21ACP4A, 21CUP4
21BTP4	21ALP4B, 21ATP4A, 21BAP4*, 21BNP4*, 21CDP4[1], A[1], 21CVP4*, 21DVP4[1]
21CBP4	21CBP4A, B, 21DQP4, 21DRP4, 21FLP4, 21CKP4[1], 21DJP4[1]
21CBP4A	21CBP4B, 21DRP4, 21FLP4, 21CKP4[1], 21DJP4[1]
21CBP4B	21CBP4A, 21DRP4, 21FLP4, 21CKP4[1], 21DJP4[1]
21CDP4	21CDP4A, 21ALP4B[1], 21ATP4A[1], B[1], 21BAP4*[1], 21BNP4*[1], 21BTP4[1], 21CVP4*[1], 21CWP4[1], 21DVP4[1]
21CDP4A	21CDP4, 21ALP4B[1], 21ATP4A[1], B[1], 21BAP4*[1], 21BNP4*[1], 21BTP4[1], 21CVP4*[1], 21CWP4[1], 21DVP4[1]
21CEP4	21CEP4A, 21DFP4[1]
21CEP4A	
21CGP4	21CHP4*
21CHP4	
21CKP4	21CBP4A, B, 21DJP4[1], 21DRP4[1], 21FLP4[1]
21CLP4	
21CMP4	21DNP4, 21CBP4A*, B*, 21CKP4*[1], 21DJP4*[1], 21DRP4*, 21ELP4*[1], 21ENP4[1], 21FLP4*
21CQP4	21CSP4[1]

To Replace	Use
21CSP4	21CQP4[1]
21CUP4	21ACP4, 21ACP4A, 21BSP4
21CVP4	21BAP4, 21BNP4, 21ATP4A**, B**, 21BTP4**, 21CDP4**[1], A**[1], 21CWP4**, 21DVP4**[1]
21CWP4	21ALP4A, B, 21ATP4, A, B, 21BTP4, 21ANP4[6], A[6], 21BAP4*, 21BNP4*, 21CDP4[1], A[1], 21CVP4*, 21DVP4[1]
21CXP4	21DSP4, 21CHP4[3]
21CYP22	
21CYP22A	
21CZP4	21DAP4*, 21DEP4*, 21DEP4A*, 21DHP4[1]*, 21DKP4[1]*, 21DKP4A[1]*
21DAP4	21DEP4, 21DEP4A, 21CZP4**, 21DHP4[1], 21DKP4[1], 21DKP4A[1]
21DEP4	21DEP4A, 21DAP4, 21CZP4**, 21DHP4[1], 21DKP4[1], 21DKP4A[1]
21DEP4A	
21DFP4	21CEP4, A
21DHP4	21CZP4**[1], 21DAP4[1], 21DEP4[1], 21DEP4A[1], 21DKP4[1], 21DKP4A[1]
21DJP4	21CBP4A[1], B[1], 21CKP4[1], 21DRP4[1], 21FLP4[1]
21DKP4	21DKP4A[1], 21CZP4**[1], 21DAP4[1] 21DEP4[1], 21DEP4A[1], 21DHP4[1]
21DKP4A	21DKP4[1], 21CZP4**[1], 21DAP4[1], 21DEP4[1], 21DEP4A[1], 21DHP4[1]
21DLP4	21DQP4
21DMP4	21FAP4[†]
21DNP4	21CBP4A*[1], B*[1], 21CKP4*[1], 21CMP4[1], 21DJP4*[1], 21DRP4*[1], 21ELP4*[1], 21ENP4[1], 21FLP4*[1]
21DP4	
21DQP4	21DLP4[1]
21DRP4	21CBP4A, B, 21FLP4, 21CKP4[1] 21DJP4[1]
21DSP4	21CXP4, 21CHP4[3]

To Replace	*Use*
21DVP4	21ALP4B[1], 21ATP4A[1], 21BAP4*[1], 21BNP4*[1], 21BTP4[1], 21CDP4[1], A[1], 21CVP4*[1], 21CWP4[1]
21DWP4	21CEP4[1], 21CEP4A[1], 21DFP4[1]
21EAP4	
21ELP4	21DJP4, 21CBP4A[1], B[1], 21CKP4[1], 21CMP4**[1], 21DNP4**[1], 21DRP4[1], 21FLP4[1]
21EMP4	21EQP4[†], 21ESP4[‡], 21EXP4[1,†], 21FAP[†]
21ENP4	21CBP4A*[1], B*[1], 21CKP4*[1], 21CMP4[1], 21DJP4*[1], 21DNP4[1], 21DRP4*[1], 21ELP4*[1], 21FLP4*[1]
21EP4	21EP4A[7], 21EP4B[7]
21EP4A	21EP4[6], 21EP4B
21EP4B	21EP4[6], 21EP4A
21EQP4	21EXP4[1]
21ERP4	
21ESP4	21EMP4[1]
21EVP4	
21EXP4	21EQP4[1]
21EZP4	
21FAP4	
21FBP22	
21FCP4	21EZP4[†]
21FDP4	
21FJP22	21FKP22
21FKP22	21FJP22
21FLP4	21CBP4A, B, 21DRP4, 21CKP4[1], 21DJP4[1]
21FMP4	
21FP4	21FP4A[7], 21FP4C[7], 21KP4, A[7]
21FP4A	21FP4[6], 21FP4C, 21KP4[6], A
21FP4C	21FP4[6], 21FP4A, 21KP4[6], A
21JP4	21JP4A
21JP4A	21JP4
21KP4	21KP4A[7], 21FP4#, A#[7], C#[7]
21KP4A	21KP4[6], 21FP4#[6], A#, C#

To Replace	*Use*
21MP4	
21WP4	21WP4A
21WP4A	21WP4
21XP4	21XP4A, 21AYP4, 21ASP4[6]
21XP4A	21XP4, 21AYP4, 21ASP4[6]
21YP4	21YP4A, 21AFP4[6]
21YP4A	21YP4, 21AFP4[6]
21ZP4	21ZP4A[7], B[7], 21AWP4[7]
21ZP4A	21ZP4B, 21AWP4, 21ZP4[6]
21ZP4B	21ZP4A, 21AWP4, 21ZP4[6]
22AP4	22AP4A
22AP4A	22AP4
23ACP4	23TP4
23AFP4	23BTP4, 23BVP4
23AHP4	23AUP4, 23CZP4, 23ASP4[1], 23AZP4[1]
23AKP4	23CVP4[1]
23ALP4	23AMP4[1], 23AQP4[1], 23MP4[1], A[1], 23FP4[1], A[1], 23VP4[1]
23AMP4	23ALP4[1], 23AQP4[1], 23MP4[1], A[1], 23FP4[1], A[1], 23VP4[1]
23ANP4	23ATP4, 23BKP4, 23BLP4
23AQP4	23ALP4[1], 23AMP4[1], 23MP4[1], A[1]
23ARP4	23BCP4[1], 23CEP4[1], 23CMP4[1]
23ASP4	23AUP4, 23AHP4[1], 23AZP4[1]
23ATP4	23ANP4, 23BKP4, 23BLP4
23AUP4	23CZP4
23AVP4	23BNP4, 23CP4, 23CP4A, 23GP4, 23AYP4[1], 23BEP4[1], 23BQP4[1], 23BSP4[1], 23CBP4[1], 23SP4[1]
23AWP4	23BJP4
23AXP4	
23AYP4	23BEP4, 23BSP4, 23SP4, 23AVP4[1], 23BNP4[1], 23BQP4[1], 23CBP4[1], 23CP4[1], A[1], 23GP4[1]
23AZP4	23AHP4[1], 23ASP4[1], 23AUP4[1], 23CZP4[1]

To Replace	*Use*
23BAP4	23BP4, 23BRP4[1,†], 23BYP4[1,†], 23CSP4[1,†], 23CUP4[1,†], 23DP4[†], 23RP4[1,†]
23BCP4	23CMP4, 23ARP4[1], 23CEP4[1]
23BDP4	23BMP4, 23BTP4, 23YP4, 23CDP4[1], 23CTP4[1]
23BEP4	23BSP4, 23AVP4[1], 23AYP4[1], 23BNP4[1], 23BQP4[1], 23CBP4[1], 23CP4[1], A[1], 23GP4[1], 23SP4[1]
23BGP4	23BHP4
23BHP4	23BGP4
23BJP4	
23BKP4	23ANP4, 23ATP4, 23BLP4
23BLP4	23ANP4, 23ATP4, 23BKP4
23BMP4	23BDP4, 23BTP4, 23YP4, 23CDP4[1], 23CTP4[1]
23BNP4	23CBP4, 23CP4, A, 23GP4, 23SP4, 23AVP4[1], 23AYP4[1], 23BEP4[1], 23BQP4[1], 23BSP4[1]
23BP4	23BAP4, 23BRP4[1,†], 23BYP4[1,†], 23CSP4[1,†], 23CUP4[1,†], 23DP4[†], 23RP4[1,†]
23BQP4	23CBP4, 23AVP4[1], 23AYP4[1], 23BEP4[1], 23BNP4[1], 23BSP4[1] 23CP4[1], A[1], 23GP4[1], 23SP4[1]
23BRP4	23BYP4, 23CSP4, 23RP4, 23CUP4[1], 23DP4[1]
23BSP4	23BEP4, 23AVP4[1], 23AYP4[1], 23BNP4[1], 23BQP4[1], 23CBP4[1], 23CP4[1], 23GP4[1], 23SP4[1]
23BTP4	
23BVP4	23AFP4
23BYP4	23CSP4, 23BRP4[1], 23CUP4[1], 23DP4[1], 23RP4[1]
23BZP4	
23CAP4	

To Replace	*Use*
23CBP4	23BQP4, 23AVP4[1], 23AYP4[1], 23BEP4[1], 23BNP4[1], 23BSP4[1], 23CP4[1], A[1], 23GP4[1], 23SP4[1]
23CDP4	23BDP4[1], 23BMP4[1], 23BTP4[1], 23CTP4[1], 23YP4[1]
23CEP4	23ARP4[1], 23BCP4[1], 23CMP4[1]
23CMP4	23ARP4[1], 23BCP4[1], 23CEP4[1]
23CP4	23CP4A, 23BNP4, 23AVP4[1], 23AYP4[1], 23BEP4[1], 23BQP4[1], 23BSP4[1], 23CBP4[1], 23GP4[1], 23SP4[1]
23CP4A	23BQP4[1], 23CBP4[1]
23CQP4	23FP4A[1]
23CSP4	23BYP4, 23BRP4[1], 23CUP4[1], 23DP4[1], 23RP4[1]
23CTP4	23BDP4[1], 23BMP4[1], 23BTP4[1], 23CDP4[1], 23YP4[1]
23CUP4	23DP4, 23BRP4[1], 23BYP4[1], 23CSP4[1], 23RP4[1]
23CVP4	23AKP4[1]
23CWP4	23CXP4[1]
23CXP4	23CWP4[1]
23CZP4	23AUP4
23DAP4	
23DBP4	
23DP4	23BRP4[1], 23BYP4[1], 23CSP4[1], 23CUP4[1], 23RP4[1]
23EP4	
23FP4	23FP4A, 23CQP4[1], 23CWP4[1,†], 23CXP4[1,†], 23KP4A[1,†], 23VP4[1],
23FP4A	23CQP4[1], 23CWP4[1,†], 23CXP4[1,†]
23GP4	23AVP4, 23BNP4, 23CP4, A, 23AYP4[1], 23BEP4[1], 23BQP4[1], 23BSP4[1], 23CBP4[1], 23SP4[1]
23HP4	23AVP4, 23BNP4, 23CP4, A, 23GP4, 23AYP4[1], 23BEP4[1], 23BQP4[1], 23BSP4[1], 23CBP4[1], 23SP4[1]
23JP4	

To Replace	Use
23KP4	23KP4A
23KP4A	
23MP4	23MP4A, 23FP4, A, 23ALP4[1], 23AMP4[1], 23AQP4[1], 23VP4[1]
23MP4A	23FP4A, 23CQP4[1]
23NP4	
23RP4	23BRP4, 23BYP4, 23CSP4, 23CUP4[1], 23DP4[1]
23SP4	23AYP4, 23BEP4, 23BSP4, 23AVP4[1], 23BNP4[1], 23BQP4[1], 23CBP4[1], 23CP4[1], A[1], 23GP4[1]
23TP4	
23UP4	23BQP4, 23CBP4, 23AVP4[1], 23AYP4[1], 23BEP4[1], 23BNP4[1], 23BSP4[1], 23CP4[1], A[1], 23GP4[1], 23SP4[1]
23VP4	23CQP4[1], 23CWP4[1,†], 23CXP4[†], 23FP4[1], A[1], 23KP4A[1,†]
23WP4	23MP4, A, 23ALP4[1], 23AMP4[1], 23AQP4[1]
23XP4	23BDP4, 23BMP4, 23BTP4, 23YP4, 23CDP4[1], 23CTP4[1]
23YP4	23BDP4, 23BMP4, 23BTP4, 23CDP4[1], 23CTP4[1]
23ZP4	
24ADP4	24VP4, A
24AEP4	24AUP4, 24ASP4[1]
24AHP4	24ALP4, 24AQP4[1], 24AXP4[1]
24AJP4	24ATP4
24ALP4	24AHP4, 24AQP4[1], 24AXP4[1]
24AMP4	
24ANP4	24AEP4*[1], 24ASP4*[1], 24AUP4*
24AP4	24AP4A, 24AP4B
24AP4A	24AP4, 24AP4B
24AP4B	24AP4, 24AP4A
24AQP4	24AHP4[1], 24ALP4[1], 24AXP4[1]
24ASP4	24AEP4[1], 24AUP4[1]
24ATP4	24AJP4[1]
24AUP4	

To Replace	*Use*
24AVP4	
24AWP4	
24AXP4	24AHP4[1], 24ALP4[1], 24AQP4[1]
24BAP4	
24BP4	
24CP4	24CP4A, 24ADP4, 24TP4, 24VP4, 24VP4A, 24XP4[6]
24CP4A	24CP4, 24ADP4, 24TP4, 24VP4, A, 24XP4[6]
24DP4	24DP4A, 24ANP4, 24YP4, 24AEP4*, 24ASP4*[1], 24ZP4*
24DP4A	24DP4, 24ANP4, 24YP4, 24AEP4*, 24ASP4*[1], 24ZP4*
24QP4	24ADP4, 24CP4, A, 24TP4, 24VP4, A, 24XP4[6]
24TP4	24ADP4, 24CP4, 24CP4A, 24VP4, 24VP4A, 24XP4[6]
24VP4	24VP4A, 24ADP4
24VP4A	24VP4, 24ADP4
24XP4	24ADP4[7], 24CP4[7], 24CP4A[7], 24TP4[7], 24VP4[7], 24VP4A[7]
24YP4	24ANP4, 24DP4, 24DP4A, 24AEP4*, 24ASP4*[1], 24ZP4*
24ZP4	24EP4, 24ANP**, 24DP4**, 24DP4A**, 24YP4**
27ABP4	
27AP4	
27EP4	27GP4, 27RP4[7]
27GP4	27EP4, 27RP4[7]
27LP4	
27MP4	
27NP4	27RP4, 27EP4[6], 27GP4[6]
27RP4	27EP4[6], 27GP4[6]
27SP4	27UP4
27UP4	27SP4
27VP4	27XP4
27WP4	

To Replace	*Use*
27XP4	
27YP4	
27ZP4	
30BP4	

ODD FILAMENT VOLTAGES

Type	*Voltage*	*Type*	*Voltage*
9QP4,A	4.7V	17DRP4	2.68V
10ADP4	8.4V	19ABP4	2.68V
12AP4	2.5V	19AEP4	12.6V
12CP4	2.5V	21EAP4	2.35V
14ATP4	8.4V	21EVP4	2.68V
17CDP4	8.4V	23BZP4	8.4V
17DAP4	2.68V	23CAP4	8.4V
17DEP4	2.35V	24AVP4	2.35V

LOW E_{g2}

14ACP4
14AEP4
14ARP4
14AUP4
14AWP4
17BMP4
17BNP4
17CMP4
17CNP4
17CRP4
17CXP4
17DQP4
19ACP4
19AEP4
19AJP4
19BDP4
19BNP4
19BQP4
19CDP4
19CFP4
19CHP4
19CKP4
19CLP4
21CGP4
21CHP4
21CXP4
21DSP4
21FMP4
23ANP4
23ATP4
23AWP4
23BGP4
23BHP4
23BJP4
23BKP4
23BLP4
23DAP4
23DBP4
23EP4
23JP4
23NP4
23ZP4
24AJP4
24ATP4
24BAP4

COMPLETELY REVISED 5th EDITION!

Howard W. Sams

TUBE SUBSTITUTION handbook

Here is the most complete, up-to-date DIRECT tube substitution guide available . . . now including 7,712 substitutions . . . 1,078 more than in Volume 4.

The directory of receiving tubes has been expanded to 1,950 types, with over 4,162 substitutions. The Subminiature Tube Section contains 359 types, with 309 recommended substitutes. Three more Sections list 263 industrial and 624 foreign substitutes for American receiving tubes . . . 535 American receiving-tube substitutes for foreign types. The Picture-Tube Section shows 520 types, with recommendations for 1,795 *direct* substitutions. Instructions accompanying each Section guide you in making proper tube substitutions, and explain how to cross-reference between Sections for other substitutes.

Compiled by the Howard W. Sams engineering staff, this book belongs not only in your tube caddy, but on your bench as well.

HOWARD W. SAMS & CO., INC.
THE BOBBS-MERRILL COMPANY, INC.

$1.50
TUB-5